

Appendix 1: Slot - Pol Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		Kp	THD - Total Harmonic Distortion
			Winding All Slots Filled	Balanced Winding		Paths			
10	6	0.6	0	2	2	2	0.5	0.249604232	
10	7	0.7	1	2	1	2	0.781831482	0.281021751	
10	8	0.8	2	2	2	2	0.923879533	0.122971276	
10	9	0.9	0	1	1	1	0.984807753	0.166114912	
12	9	0.75	0	1	3	3	0.866025404	0.249604232	
12	10	0.833333333	1	1	2	3	0.951056516	0.123848433	
12	11	0.916666667	2	1	1	3	0.989821442	0.173334714	
14	9	0.642857143	0	2	1	1	0.64278761	0.197900559	
14	10	0.714285714	1	2	2	1	0.809016994	0.271648756	
14	11	0.785714286	2	2	1	1	0.909631995	0.146945689	
14	12	0.857142857	0	1	2	2	0.965925826	0.139252172	
14	13	0.928571429	1	1	1	2	0.992708874	0.177885384	
16	9	0.5625	0	1	1	1	0.342020143	0.657104652	
16	10	0.625	1	1	2	1	0.587785252	0.201330169	
16	11	0.6875	2	1	1	1	0.755749574	0.276438918	
16	12	0.75	0	1	4	4	0.866025404	0.249604232	
16	13	0.8125	1	1	1	4	0.935016243	0.11528497	
16	14	0.875	2	1	2	4	0.974927912	0.149341528	
16	15	0.9375	0	1	1	1	0.994521895	0.183418691	
20	12	0.6	0	2	4	4	0.5	0.249604232	
20	13	0.65	1	2	1	4	0.663122658	0.216878644	
20	14	0.7	2	2	2	4	0.781831482	0.281021751	
20	15	0.75	0	1	5	5	0.866025404	0.249604232	
20	16	0.8	1	1	4	5	0.923879533	0.122971276	
20	17	0.85	2	1	1	5	0.961825643	0.135272043	
20	18	0.9	0	1	2	2	0.984807753	0.166114912	

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Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel Paths	Kp	THD - Total Harmonic Distortion
			Winding All Slots Filled	Balanced Winding				
22	12	0.545454545	0	2	2	2	0.258819045	0.812389602
22	13	0.590909091	1	2	1	2	0.464723172	0.361566081
22	14	0.636363636	2	1	2	22	0.623489802	0.189969977
22	15	0.681818182	0	1	1	1	0.743144825	0.269343888
22	16	0.727272727	1	1	2	22	0.831469612	0.268212778
22	17	0.772727273	2	1	1	22	0.895163291	0.182599153
22	18	0.818181818	0	2	2	2	0.939692621	0.115564239
22	19	0.863636364	1	1	1	22	0.969400266	0.142690529
22	20	0.909090909	2	1	2	22	0.987688341	0.170539182
22	21	0.954545455	0	1	1	1	0.997203797	0.202472832
24	18	0.75	0	1	6	6	0.866025404	0.249604232
24	19	0.791666667	1	1	1	6	0.915773327	0.134926839
24	20	0.833333333	2	1	4	6	0.951056516	0.123848433
26	15	0.576923077	0	2	1	1	0.406736643	0.528308632
26	16	0.615384615	1	2	2	1	0.555570233	0.201791183
26	17	0.653846154	2	2	1	1	0.673695644	0.227187156
26	18	0.692307692	0	1	2	2	0.766044443	0.28034481
26	19	0.730769231	1	1	1	2	0.837166478	0.268023535
26	20	0.769230769	2	1	2	2	0.891006524	0.193762432
26	21	0.807692308	0	2	1	1	0.930873749	0.116823889
26	22	0.846153846	1	2	2	1	0.959492974	0.132900247
26	23	0.884615385	2	2	1	1	0.979084088	0.155926545
26	24	0.923076923	0	1	2	2	0.991444861	0.175576734
26	25	0.961538462	1	1	1	2	0.998026728	0.212711602
28	15	0.535714286	0	1	1	1	0.207911691	0.956097664
28	16	0.571428571	1	1	4	1	0.382683432	0.580766246
28	17	0.607142857	2	1	1	1	0.526432163	0.204155251
28	18	0.642857143	0	2	2	2	0.64278761	0.197900559
28	19	0.678571429	1	2	1	2	0.735723911	0.26479621

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Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum		THD - Total Harmonic Distortion
			Winding	All Slots Filled		Parallel Paths	Kp	
28	20	0.714285714	2	2	4	2	0.809016994	0.271648756
28	21	0.75	0	1	7	7	0.866025404	0.249604232
28	22	0.785714286	1	1	2	7	0.909631995	0.146945689
28	23	0.821428571	2	1	1	7	0.942260922	0.116603578
28	24	0.857142857	0	1	4	4	0.965925826	0.139252172
28	25	0.892857143	1	1	1	4	0.982287251	0.161675982
28	26	0.928571429	2	1	2	4	0.992708874	0.177885384
28	27	0.964285714	0	1	1	1	0.998308158	0.216841025
30	18	0.6	0	2	6	6	0.5	0.249604232
30	19	0.633333333	1	2	1	6	0.614212713	0.190971274
30	20	0.666666667	2	2	10	6	0.707106781	0.249604232
30	27	0.9	0	1	3	3	0.984807753	0.166114912
30	28	0.933333333	1	1	2	3	0.99371221	0.180495453
30	29	0.966666667	2	1	1	3	0.998533414	0.220396749
32	18	0.5625	0	1	2	2	0.342020143	0.657104652
32	19	0.59375	1	1	1	2	0.475947393	0.323691168
32	20	0.625	2	1	4	2	0.587785252	0.201330169
32	21	0.65625	0	2	1	1	0.680172738	0.232832619
32	22	0.6875	1	2	2	1	0.755749574	0.276438918
32	23	0.71875	2	2	1	1	0.816969893	0.269499191
32	24	0.75	0	1	8	8	0.866025404	0.249604232
32	25	0.78125	1	1	1	8	0.904827052	0.157858999
32	26	0.8125	2	1	2	8	0.935016243	0.11528497
32	27	0.84375	0	2	1	1	0.957989512	0.13131874
32	28	0.875	1	2	4	1	0.974927912	0.149341528
32	29	0.90625	2	2	1	1	0.986826523	0.169308324
32	30	0.9375	0	1	2	2	0.994521895	0.183418691
32	31	0.96875	1	1	1	2	0.998716507	0.223457681
34	18	0.529411765	0	2	2	2	0.173648178	1.085649275

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Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum		THD - Total	
			Winding All Slots Filled	Balanced Winding		Parallel Paths	Kp	Harmonic Distortion	
34	19	0.558823529	1	2	1	2	0.324699469	0.686198554	
34	20	0.588235294	2	2	2	2	0.4539905	0.397073845	
34	21	0.617647059	0	1	1	1	0.563320058	0.203411399	
34	22	0.647058824	1	1	2	1	0.654860734	0.208570119	
34	23	0.676470588	2	1	1	1	0.730835964	0.261882278	
34	24	0.705882353	0	2	2	2	0.793335334	0.277721125	
34	25	0.735294118	1	2	1	2	0.844327926	0.267057827	
34	26	0.764705882	2	2	2	2	0.885456026	0.208454625	
34	27	0.794117647	0	1	1	1	0.918216107	0.13082749	
34	28	0.823529412	1	1	2	1	0.94388333	0.117555714	
34	29	0.852941176	2	1	1	1	0.963549993	0.136965075	
34	30	0.882352941	0	2	2	2	0.978147601	0.154326845	
34	31	0.911764706	1	2	1	2	0.988468324	0.171590662	
34	32	0.941176471	2	2	2	2	0.995184727	0.186570007	
34	33	0.970588235	0	1	1	1	0.998867339	0.226097856	
36	27	0.75	0	1	9	9	0.866025404	0.249604232	
36	28	0.777777778	1	1	4	9	0.900968868	0.167391628	
36	29	0.805555556	2	1	1	9	0.92897672	0.118069217	
38	21	0.552631579	0	2	1	1	0.294755174	0.736875711	
38	22	0.578947368	1	2	2	1	0.415415013	0.507438062	
38	23	0.605263158	2	2	1	1	0.51958395	0.21104203	
38	24	0.631578947	0	1	2	2	0.608761429	0.192667	
38	25	0.657894737	1	1	1	2	0.684547106	0.236262364	
38	26	0.684210526	2	1	2	2	0.748510748	0.272550678	
38	27	0.710526316	0	2	1	1	0.802123193	0.274221271	
38	28	0.736842105	1	2	2	1	0.846724199	0.26638671	
38	29	0.763157895	2	2	1	1	0.883512044	0.213427941	
38	30	0.789473684	0	1	2	2	0.913545458	0.139013604	
38	31	0.815789474	1	1	1	2	0.937752132	0.115188724	
38	32	0.842105263	2	1	2	2	0.956940336	0.130194434	

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Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel Paths	Kp	THD - Total Harmonic Distortion	
			Winding All Slots Filled	Balanced Winding				Kp	Distortion
38	33	0.868421053	0	2	1	1	0.971811568	0.145338011	
38	34	0.894736842	1	2	2	1	0.9829731	0.162913532	
38	35	0.921052632	2	2	1	1	0.990949762	0.174843151	
38	36	0.947368421	0	1	2	2	0.996194698	0.193131583	
38	37	0.973684211	1	1	1	2	0.999098966	0.230367049	
40	21	0.525	0	1	1	1	0.149042266	1.225362448	
40	22	0.55	1	1	2	1	0.281732557	0.761620727	
40	23	0.575	2	1	1	1	0.39840109	0.547282825	
40	24	0.6	0	2	8	8	0.5	0.249604232	
40	25	0.625	1	2	5	8	0.587785252	0.201330169	
40	26	0.65	2	2	2	8	0.663122658	0.216878644	
40	27	0.675	0	1	1	1	0.727373642	0.259900638	
40	28	0.7	1	1	4	1	0.781831482	0.281021751	
40	29	0.725	2	1	1	1	0.827688998	0.268317086	
40	30	0.75	0	1	10	10	0.866025404	0.249604232	
40	31	0.775	1	1	1	10	0.89780454	0.175587301	
40	32	0.8	2	1	8	10	0.923879533	0.122971276	
40	33	0.825	0	1	1	1	0.945000819	0.118332187	
40	34	0.85	1	1	2	1	0.961825643	0.135272043	
40	35	0.875	2	1	5	1	0.974927912	0.149341528	
40	36	0.9	0	1	4	4	0.984807753	0.166114912	
40	37	0.925	1	1	1	4	0.991900435	0.176320946	
40	38	0.95	2	1	2	4	0.996584493	0.196366609	
40	39	0.975	0	1	1	1	0.999188998	0.232098334	
42	27	0.642857143	0	2	3	3	0.64278761	0.197900559	
42	28	0.666666667	1	2	14	3	0.707106781	0.249604232	
42	29	0.69047619	2	2	1	3	0.762162055	0.279151695	
42	36	0.857142857	0	1	6	6	0.965925826	0.139252172	
42	37	0.880952381	1	1	1	6	0.977555239	0.15334635	
42	38	0.904761905	2	1	2	6	0.986361303	0.16861041	

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Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		Kp	THD - Total Harmonic Distortion	
			Winding	All Slots Filled		Winding	Paths			
44	24	0.545454545	0		4	2	4	0.258819045	0.812389602	
44	25	0.568181818	1		1	2	4	0.368124553	0.609641573	
44	26	0.590909091	2		2	2	4	0.464723172	0.361566081	
44	27	0.613636364	0		1	2	1	0.549508978	0.200401777	
44	28	0.636363636	1		4	2	1	0.623489802	0.189969977	
44	29	0.659090909	2		1	2	1	0.687699459	0.238535408	
44	30	0.681818182	0		2	1	2	0.743144825	0.269343888	
44	31	0.704545455	1		1	1	2	0.790775737	0.278653118	
44	32	0.727272727	2		4	1	2	0.831469612	0.268212778	
44	33	0.75	0		11	1	11	0.866025404	0.249604232	
44	34	0.772727273	1		2	1	11	0.895163291	0.182599153	
44	35	0.795454545	2		1	1	11	0.919527773	0.12879784	
44	36	0.818181818	0		4	2	4	0.939692621	0.115564239	
44	37	0.840909091	1		1	2	4	0.956166735	0.129357338	
44	38	0.863636364	2		2	2	4	0.969400266	0.142690529	
44	39	0.886363636	0		1	2	1	0.979790652	0.157167442	
44	40	0.909090909	1		4	2	1	0.987688341	0.170539182	
44	41	0.931818182	2		1	2	1	0.99340209	0.179588252	
44	42	0.954545455	0		2	1	2	0.997203797	0.202472832	
44	43	0.977272727	1		1	1	2	0.999332848	0.234949902	
46	24	0.52173913	0		2	2	2	0.130526192	1.37050075	
46	25	0.543478261	1		1	2	2	0.248689887	0.8379287	
46	26	0.565217391	2		2	2	2	0.354604887	0.634871592	
46	27	0.586956522	0		1	1	1	0.44879918	0.413656044	
46	28	0.608695652	1		2	1	1	0.532032077	0.200919998	
46	29	0.630434783	2		1	1	1	0.605174215	0.194073445	
46	30	0.652173913	0		2	2	2	0.669130606	0.222860679	
46	31	0.673913043	1		1	2	2	0.724792787	0.258475468	
46	32	0.695652174	2		2	2	2	0.773010453	0.281489772	
46	33	0.717391304	0		1	1	1	0.814575952	0.270030285	

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			Winding All Slots Filled	Balanced Winding				
46	34	0.739130435	1	1	2	1	0.850217136	0.264969061
46	35	0.760869565	2	1	1	1	0.880595532	0.220629124
46	36	0.782608696	0	2	2	2	0.906307787	0.154370684
46	37	0.804347826	1	2	1	2	0.927889027	0.118929404
46	38	0.826086957	2	2	2	2	0.945817242	0.118956414
46	39	0.847826087	0	1	1	1	0.960518112	0.133955165
46	40	0.869565217	1	1	2	1	0.97236992	0.146000776
46	41	0.891304348	2	1	1	1	0.98170832	0.160624769
46	42	0.913043478	0	2	2	2	0.988830826	0.172063705
46	43	0.934782609	1	2	1	2	0.994000975	0.181438187
46	44	0.956521739	2	2	2	2	0.997452115	0.205290332
46	45	0.97826087	0	1	1	1	0.999390827	0.236129319
48	27	0.5625	0	1	3	3	0.342020143	0.657104652
48	28	0.583333333	1	1	4	3	0.433883739	0.458394586
48	29	0.604166667	2	1	1	3	0.515553857	0.216725294
48	36	0.75	0	1	12	12	0.866025404	0.249604232
48	37	0.770833333	1	1	1	12	0.892925858	0.188602834
48	38	0.791666667	2	1	2	12	0.915773327	0.134926839
48	45	0.9375	0	1	3	3	0.994521895	0.183418691
50	27	0.54	0	2	1	1	0.230615871	0.887487812
50	28	0.56	1	2	2	1	0.330279062	0.676958838
50	29	0.58	2	2	1	1	0.419889102	0.496170422
50	30	0.6	0	2	10	10	0.5	0.249604232
50	31	0.62	1	2	1	10	0.571268215	0.204158758
50	32	0.64	2	2	2	10	0.634393284	0.192767156
50	33	0.66	0	2	1	1	0.690079011	0.24014423
50	34	0.68	1	2	2	1	0.739008917	0.266804756
50	35	0.7	2	2	5	1	0.781831482	0.281021751
50	36	0.72	0	1	2	2	0.819152044	0.269106858
50	37	0.74	1	1	1	2	0.851529138	0.26428199



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Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		Kp	THD - Total Harmonic Distortion
			Winding All Slots Filled	Balanced Winding		Paths			
			Winding	Winding		Paths			
50	38	0.76	2	1	2	2	0.879473751	0.223300423	
50	39	0.78	0	2	1	1	0.903450435	0.16119157	
50	40	0.8	1	2	10	1	0.923879533	0.122971276	
50	41	0.82	2	2	1	1	0.941140048	0.116076553	
50	42	0.84	0	1	2	2	0.955572806	0.128711511	
50	43	0.86	1	1	1	2	0.967483697	0.140762094	
50	44	0.88	2	1	2	2	0.977146866	0.152686048	
50	45	0.9	0	1	5	5	0.984807753	0.166114912	
50	46	0.92	1	1	2	5	0.990685946	0.174475274	
50	47	0.94	2	1	1	5	0.994977815	0.185500958	
50	48	0.96	0	1	2	2	0.997858923	0.210408244	
50	49	0.98	1	1	1	2	0.999486216	0.238107884	
52	27	0.519230769	0	1	1	1	0.116092914	1.507797807	
52	28	0.538461538	1	1	4	1	0.222520934	0.911107652	
52	29	0.557692308	2	1	1	1	0.31930153	0.695090731	
52	30	0.576923077	0	2	2	2	0.406736643	0.528308632	
52	31	0.596153846	1	2	1	2	0.485301963	0.29288233	
52	32	0.615384615	2	2	4	2	0.555570233	0.201791183	
52	33	0.634615385	0	1	1	1	0.618158986	0.190209586	
52	34	0.653846154	1	1	2	1	0.673695644	0.227187156	
52	35	0.673076923	2	1	1	1	0.722794864	0.257403142	
52	36	0.692307692	0	1	4	4	0.766044443	0.28034481	
52	37	0.711538462	1	1	1	4	0.80399713	0.273480257	
52	38	0.730769231	2	1	2	4	0.837166478	0.268023535	
52	39	0.75	0	1	13	13	0.866025404	0.249604232	
52	40	0.769230769	1	1	4	13	0.891006524	0.193762432	
52	41	0.788461538	2	1	1	13	0.912503616	0.141034076	
52	42	0.807692308	0	2	2	2	0.930873749	0.116823889	
52	43	0.826923077	1	2	1	2	0.946439773	0.119462306	
52	44	0.846153846	2	2	4	2	0.959492974	0.132900247	
52	45	0.865384615	0	1	1	1	0.970295726	0.143637911	



Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		Kp	THD - Total Harmonic Distortion
			Winding All Slots Filled	Balanced Winding		Paths			
52	46	0.884615385	1	1	2	1		0.979084088	0.155926545
52	47	0.903846154	2	1	1	1		0.986070254	0.168161739
52	48	0.923076923	0	1	4	4		0.991444861	0.175576734
52	49	0.942307692	1	1	1	4		0.995379113	0.187652192
52	50	0.961538462	2	1	2	4		0.998026728	0.212711602
52	51	0.980769231	0	1	1	1		0.99952572	0.238941275
54	53	0.981481481	2	1	1	54		0.999560837	0.23968906
56	29	0.517857143	2	2	1	1		0.108119018	1.591095215
56	30	0.535714286	0	1	2	2		0.207911691	0.956097664
56	31	0.553571429	1	1	1	2		0.299363123	0.728674215
56	32	0.571428571	2	1	8	2		0.382683432	0.580766246
56	33	0.589285714	0	2	1	1		0.458226522	0.38322537
56	34	0.607142857	1	2	2	1		0.526432163	0.204155251
56	35	0.625	2	2	7	1		0.587785252	0.201330169
56	36	0.642857143	0	2	4	4		0.64278761	0.197900559
56	37	0.660714286	1	2	1	4		0.691938869	0.241340786
56	38	0.678571429	2	2	2	4		0.735723911	0.26479621
56	39	0.696428571	0	2	1	1		0.774604962	0.281562485
56	40	0.714285714	1	2	8	1		0.809016994	0.271648756
56	41	0.732142857	2	2	1	1		0.839365426	0.2678539
56	42	0.75	0	1	14	14		0.866025404	0.249604232
56	43	0.767857143	1	1	1	14		0.889342149	0.198219622
56	44	0.785714286	2	1	4	14		0.909631995	0.146945689
56	45	0.803571429	0	2	1	1		0.927183855	0.1195424
56	46	0.821428571	1	2	2	1		0.942260922	0.116603578
56	47	0.839285714	2	2	1	1		0.955102497	0.128198982
56	48	0.857142857	0	1	8	8		0.965925826	0.139252172
56	49	0.875	1	1	7	8		0.974927912	0.149341528
56	50	0.892857143	2	1	2	8		0.982287251	0.161675982
56	51	0.910714286	0	2	1	1		0.988165472	0.171188554

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel Paths		Kp	THD - Total Harmonic Distortion	
			Winding All Slots Filled	Balanced Winding		Parallel	Paths			
56	52	0.928571429	1	2	4	1	1	0.992708874	0.177885384	
56	53	0.946428571	2	2	1	1	1	0.996049843	0.192037492	
56	54	0.964285714	0	1	2	2	2	0.998308158	0.216841025	
56	55	0.982142857	1	1	1	2	2	0.999592193	0.240362313	
58	30	0.517241379	0	2	2	2	2	0.104528463	1.629933185	
58	31	0.534482759	1	2	1	2	2	0.20129852	0.977780486	
58	32	0.551724138	2	2	2	2	2	0.290284677	0.745085515	
58	33	0.568965517	0	1	1	1	1	0.371662456	0.602793496	
58	34	0.586206897	1	1	2	2	2	0.445738356	0.423203988	
58	35	0.603448276	2	1	1	1	1	0.512899277	0.221137291	
58	36	0.620689655	0	2	2	2	2	0.573576436	0.204130216	
58	37	0.637931034	1	2	1	2	2	0.628219997	0.190622316	
58	38	0.655172414	2	2	2	2	2	0.677281572	0.230392404	
58	39	0.672413793	0	1	1	1	1	0.721202447	0.256567045	
58	40	0.689655172	1	1	2	2	2	0.760405966	0.278494052	
58	41	0.706896552	2	1	1	1	1	0.795292871	0.276974514	
58	42	0.724137931	0	2	2	2	2	0.826238774	0.268383038	
58	43	0.74137931	1	2	1	2	2	0.853593089	0.263011021	
58	44	0.75862069	2	2	2	2	2	0.87767899	0.227444715	
58	45	0.775862069	0	1	1	1	1	0.898794046	0.172995494	
58	46	0.793103448	1	1	2	2	2	0.917211302	0.132464151	
58	47	0.810344828	2	1	1	1	1	0.933180611	0.115762474	
58	48	0.827586207	0	2	2	2	2	0.946930129	0.119877837	
58	49	0.844827586	1	2	1	2	2	0.958667853	0.132037068	
58	50	0.862068966	2	2	2	2	2	0.968583161	0.141854648	
58	51	0.879310345	0	1	1	1	1	0.976848318	0.152211797	
58	52	0.896551724	1	1	2	2	2	0.983619907	0.164065083	
58	53	0.913793103	2	1	1	1	1	0.989040187	0.1723338	
58	54	0.931034483	0	2	2	2	2	0.993238358	0.179148535	
58	55	0.948275862	1	2	1	2	2	0.996331731	0.194219255	
58	56	0.965517241	2	2	2	2	2	0.998426815	0.218685636	

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Balanced			Ct	Maximum Parallel		THD - Total	
		Slot/Pole Ratio	Winding All Slots Filled	Balanced Winding		Paths	Kp	Harmonic Distortion	
58	57	0.982758621	0	1	1	1	0.999620307	0.240970419	
60	36	0.6	0	2	12	12	0.5	0.249604232	
60	37	0.616666667	1	2	1	12	0.559974786	0.202782194	
60	38	0.633333333	2	2	2	12	0.614212713	0.190971274	
60	45	0.75	0	1	15	15	0.866025404	0.249604232	
60	46	0.766666667	1	1	2	15	0.887885218	0.202092476	
60	47	0.783333333	2	1	1	15	0.907090914	0.152569055	
60	54	0.9	0	1	6	6	0.984807753	0.166114912	
60	55	0.916666667	1	1	5	6	0.989821442	0.173334714	
60	56	0.933333333	2	1	4	6	0.99371221	0.180495453	
62	32	0.516129032	2	1	2	2	0.09801714	1.70192915	
62	33	0.532258065	0	2	1	1	0.189251244	1.020531146	
62	34	0.548387097	1	2	2	1	0.27366299	0.778373751	
62	35	0.564516129	2	2	1	1	0.351374824	0.640687319	
62	36	0.580645161	0	1	2	2	0.422618262	0.489112842	
62	37	0.596774194	1	1	1	2	0.487694944	0.285294494	
62	38	0.612903226	2	1	2	2	0.546948158	0.199913517	
62	39	0.629032258	0	2	1	1	0.600742264	0.195986587	
62	40	0.64516129	1	2	2	1	0.649448048	0.203438155	
62	41	0.661290323	2	2	1	1	0.693432501	0.242265206	
62	42	0.677419355	0	1	2	2	0.733051872	0.263188689	
62	43	0.693548387	1	1	1	2	0.76864714	0.280927823	
62	44	0.709677419	2	1	2	2	0.800541241	0.274859491	
62	45	0.725806452	0	2	1	1	0.829037573	0.26827164	
62	46	0.741935484	1	2	2	1	0.854419405	0.262433349	
62	47	0.758064516	2	2	1	1	0.876949928	0.229079496	
62	48	0.774193548	0	1	2	2	0.896872742	0.178047438	
62	49	0.790322581	1	1	1	2	0.914412623	0.137384467	
62	50	0.806451613	2	1	2	2	0.929776486	0.117504135	
62	51	0.822580645	0	2	1	1	0.943154434	0.117101241	

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Balanced Winding	Ct	Maximum Parallel		THD - Total Harmonic Distortion	
			Winding All Slots Filled	Balanced Winding			Paths	Kp		
62	52	0.838709677	1	2	2	1	1	0.954720867	0.127782815	
62	53	0.85483871	2	2	1	1	1	0.964635582	0.138012941	
62	54	0.870967742	0	1	2	2	2	0.973044871	0.146831819	
62	55	0.887096774	1	1	1	2	2	0.980082561	0.157686981	
62	56	0.903225806	2	1	2	2	2	0.985871019	0.167849362	
62	57	0.919354839	0	2	1	1	1	0.990522085	0.174252763	
62	58	0.935483871	1	2	2	1	1	0.994137957	0.181922066	
62	59	0.951612903	2	2	1	1	1	0.996812007	0.198464747	
62	60	0.967741935	0	1	2	2	2	0.998629535	0.221984253	
62	61	0.983870968	1	1	1	2	2	0.999668468	0.24202198	
64	33	0.515625	0	1	1	1	1	0.095056043	1.735154767	
64	34	0.53125	1	1	2	1	1	0.183749518	1.041971056	
64	35	0.546875	2	1	1	1	1	0.266036846	0.795326218	
64	36	0.5625	0	1	4	4	4	0.342020143	0.657104652	
64	37	0.578125	1	1	1	4	4	0.411901248	0.516037777	
64	38	0.59375	2	1	2	4	4	0.475947393	0.323691168	
64	39	0.609375	0	1	1	1	1	0.534465826	0.200100708	
64	40	0.625	1	1	8	1	1	0.587785252	0.201330169	
64	41	0.640625	2	1	1	1	1	0.636242442	0.193689845	
64	42	0.65625	0	2	2	2	2	0.680172738	0.232832619	
64	43	0.671875	1	2	1	2	2	0.719903474	0.255896461	
64	44	0.6875	2	2	4	2	2	0.755749574	0.276438918	
64	45	0.703125	0	1	1	1	1	0.788010754	0.279549049	
64	46	0.71875	1	1	2	1	1	0.816969893	0.269499191	
64	47	0.734375	2	1	1	1	1	0.842892271	0.267361096	
64	48	0.75	0	1	16	16	16	0.866025404	0.249604232	
64	49	0.765625	1	1	1	16	16	0.886599306	0.205477831	
64	50	0.78125	2	1	2	16	16	0.904827052	0.157858999	
64	51	0.796875	0	1	1	1	1	0.920905518	0.126799497	
64	52	0.8125	1	1	4	1	1	0.935016243	0.11528497	
64	53	0.828125	2	1	1	1	1	0.947326354	0.120223959	

App ndix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		THD - Total Harmonic Distortion	
			Winding All Slots Filled	Balanced Winding		Paths	Kp		
64	54	0.84375	0	2	2	2	0.957989512	0.13131874	
64	55	0.859375	1	2	1	2	0.967146855	0.140432814	
64	56	0.875	2	2	8	2	0.974927912	0.149341528	
64	57	0.890625	0	1	1	1	0.981451493	0.160158007	
64	58	0.90625	1	1	2	1	0.986826523	0.169308324	
64	59	0.921875	2	1	1	1	0.991152831	0.175136273	
64	60	0.9375	0	1	4	4	0.994521895	0.183418691	
64	61	0.953125	1	1	1	4	0.997017526	0.200502722	
64	62	0.96875	2	1	2	4	0.998716507	0.223457681	
64	63	0.984375	0	1	1	1	0.999689182	0.242478114	
66	36	0.545454545	0	2	6	6	0.258819045	0.812389602	
66	37	0.560606061	1	2	1	6	0.333139795	0.672182806	
66	38	0.575757576	2	2	2	6	0.401695425	0.539898186	
66	45	0.681818182	0	1	3	3	0.743144825	0.269343888	
66	46	0.696969697	1	1	2	3	0.775711291	0.281571223	
66	47	0.712121212	2	1	1	3	0.805070053	0.273067038	
66	54	0.818181818	0	2	6	6	0.939692621	0.115564239	
66	55	0.833333333	1	2	11	6	0.951056516	0.123848433	
66	56	0.848484848	2	2	2	6	0.960917322	0.134360589	
66	63	0.954545455	0	1	3	3	0.997203797	0.202472832	
66	64	0.969696969	1	1	2	3	0.998795456	0.224826063	
66	65	0.984848485	2	1	1	3	0.999708014	0.242894811	
68	35	0.514705882	2	2	1	1	0.089639309	1.796362048	
68	36	0.529411765	0	2	4	4	0.173648178	1.085649275	
68	37	0.544117647	1	2	1	4	0.251978061	0.829443747	
68	38	0.558823529	2	2	2	4	0.324699469	0.686198554	
68	39	0.573529412	0	2	1	1	0.39196661	0.561317781	
68	40	0.588235294	1	2	4	1	0.4539905	0.397073845	
68	41	0.602941176	2	2	1	1	0.511018679	0.224578978	
68	42	0.617647059	0	1	2	2	0.563320058	0.203411399	

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		THD - Total Harmonic Distortion	
			Winding All Slots Filled	Balanced Winding		Paths	Kp		
68	43	0.632352941	1	1	1	2	0.611173714	0.191838153	
68	44	0.647058824	2	1	4	2	0.654860734	0.208570119	
68	45	0.661764706	0	2	1	1	0.69465837	0.243000973	
68	46	0.676470588	1	2	2	1	0.730835964	0.261882278	
68	47	0.691176471	2	2	1	1	0.763652197	0.279653574	
68	48	0.705882353	0	2	4	4	0.79335334	0.277721125	
68	49	0.720588235	1	2	1	4	0.820172255	0.268952968	
68	50	0.735294118	2	2	2	4	0.844327926	0.267057827	
68	51	0.75	0	1	17	17	0.866025404	0.249604232	
68	52	0.764705882	1	1	4	17	0.885456026	0.208454625	
68	53	0.779411765	2	1	1	17	0.90279783	0.162799321	
68	54	0.794117647	0	1	2	2	0.918216107	0.13082749	
68	55	0.808823529	1	1	1	2	0.931864029	0.11630625	
68	56	0.823529412	2	1	4	2	0.94388333	0.117555714	
68	57	0.838235294	0	2	1	1	0.954405002	0.127438441	
68	58	0.852941176	1	2	2	1	0.963549993	0.136965075	
68	59	0.867647059	2	2	1	1	0.971429893	0.144896962	
68	60	0.882352941	0	2	4	4	0.978147601	0.154326845	
68	61	0.897058824	1	2	1	4	0.983797952	0.164378365	
68	62	0.911764706	2	2	2	4	0.988468324	0.171590662	
68	63	0.926470588	0	2	1	1	0.992239207	0.176932212	
68	64	0.941176471	1	2	4	1	0.995184727	0.186570007	
68	65	0.955882353	2	2	1	1	0.99737315	0.204370043	
68	66	0.970588235	0	1	2	2	0.998867339	0.226097856	
68	67	0.985294118	1	1	1	2	0.999725185	0.243276429	
70	36	0.514285714	0	2	2	2	0.087155743	1.824493511	
70	37	0.528571429	1	2	1	2	0.16900082	1.108033737	
70	38	0.542857143	2	2	2	2	0.245485487	0.846366668	
70	39	0.557142857	0	1	1	1	0.316667994	0.699431555	
70	40	0.571428571	1	1	10	1	0.382683432	0.580766246	
70	41	0.585714286	2	1	1	1	0.443719838	0.429400647	

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel Paths	Kp	THD - Total Harmonic Distortion
			Winding All Slots Filled	Balanced Winding				
70	42	0.6	0	2	14	14	0.5	0.249604232
70	43	0.614285714	1	2	1	14	0.551767741	0.200897735
70	44	0.628571429	2	2	2	14	0.599277667	0.196636785
70	45	0.642857143	0	2	5	5	0.64278761	0.197900559
70	46	0.657142857	1	2	2	5	0.682553143	0.234738809
70	47	0.671428571	2	2	1	5	0.718823684	0.255346265
70	48	0.685714286	0	2	2	2	0.751839807	0.274422947
70	49	0.7	1	2	7	2	0.781831482	0.281021751
70	50	0.714285714	2	2	10	2	0.809016994	0.271648756
70	51	0.728571429	0	1	1	1	0.833602385	0.268164586
70	52	0.742857143	1	1	2	1	0.855781272	0.261391152
70	53	0.757142857	2	1	1	1	0.875734942	0.231737539
70	54	0.771428571	0	2	2	2	0.89363264	0.186703081
70	55	0.785714286	1	2	5	2	0.909631995	0.146945689
70	56	0.8	2	2	14	2	0.923879533	0.122971276
70	57	0.814285714	0	1	1	1	0.936511241	0.115140911
70	58	0.828571429	1	1	2	1	0.947653171	0.120516078
70	59	0.842857143	2	1	1	1	0.957422038	0.130712438
70	60	0.857142857	0	1	10	10	0.965925826	0.139252172
70	61	0.871428571	1	1	1	10	0.973264374	0.147109526
70	62	0.885714286	2	1	2	10	0.979529941	0.156706624
70	63	0.9	0	1	7	7	0.984807753	0.166114912
70	64	0.914285714	1	1	2	7	0.98917651	0.17250882
70	65	0.928571429	2	1	5	7	0.992708874	0.177885384
70	66	0.942857143	0	2	2	2	0.995471923	0.188196976
70	67	0.957142857	1	2	1	2	0.997527572	0.206191446
70	68	0.971428571	2	2	2	2	0.998932975	0.227280904
70	69	0.985714286	0	1	1	1	0.999740885	0.243626749
72	54	0.75	0	1	18	18	0.866025404	0.249604232
72	55	0.763888889	1	1	1	18	0.884432931	0.211087162
72	56	0.777777778	2	1	8	18	0.900968868	0.167391628



Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		Kp	THD - Total Harmonic Distortion	
			Winding	All Slots Filled		Balanced Winding	Paths			
74	38	0.513513514	2		2	1	2	0.082579345	1.876216111	
74	39	0.527027027	0		1	2	1	0.160411281	1.153984996	
74	40	0.540540541	1		2	2	1	0.233445364	0.879430943	
74	41	0.554054054	2		1	2	1	0.301720599	0.724565987	
74	42	0.567567568	0		2	1	2	0.365341024	0.614956469	
74	43	0.581081081	1		1	1	2	0.424456699	0.484276727	
74	44	0.594594595	2		2	1	2	0.479248987	0.312660906	
74	45	0.608108108	0		1	2	1	0.529919264	0.20190773	
74	46	0.621621622	1		2	2	1	0.576680322	0.203899878	
74	47	0.635135135	2		1	2	1	0.619749889	0.190036726	
74	48	0.648648649	0		2	1	2	0.659345815	0.213053378	
74	49	0.662162162	1		1	1	2	0.695682551	0.243600704	
74	50	0.675675676	2		2	1	2	0.728968627	0.260803898	
74	51	0.689189189	0		1	2	1	0.759404917	0.278088789	
74	52	0.702702703	1		2	2	1	0.787183481	0.279791884	
74	53	0.716216216	2		1	2	1	0.812486878	0.27057824	
74	54	0.72972973	0		2	1	2	0.835487811	0.268104949	
74	55	0.743243243	1		1	1	2	0.85634903	0.260922609	
74	56	0.756756757	2		2	1	2	0.875223422	0.232830934	
74	57	0.77027027	0		1	2	1	0.892254239	0.190408994	
74	58	0.783783784	1		2	2	1	0.90757542	0.151470116	
74	59	0.797297297	2		1	2	1	0.921311978	0.126236648	
74	60	0.810810811	0		2	1	2	0.933580426	0.115630436	
74	61	0.824324324	1		1	1	2	0.944489229	0.117965125	
74	62	0.837837838	2		2	1	2	0.954139256	0.127148922	
74	63	0.851351351	0		1	2	1	0.962624247	0.136061597	
74	64	0.864864865	1		2	2	1	0.970031253	0.143354243	
74	65	0.878378378	2		1	2	1	0.976441079	0.151576784	
74	66	0.891891892	0		2	1	2	0.981928697	0.161025252	
74	67	0.905405405	1		1	1	2	0.986563651	0.168916895	
74	68	0.918918919	2		2	1	2	0.990410431	0.174103298	

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Balanced			Ct	Maximum Parallel		THD - Total	
		Slot/Pole Ratio	Balanced Winding All Slots Filled			Paths	Kp	Harmonic Distortion	
			Winding	Balanced					
74	69	0.932432432	0	2	1	1	0.993528833	0.179946736	
74	70	0.945945946	1	2	2	1	0.995974294	0.191488821	
74	71	0.959459459	2	2	1	1	0.997798209	0.209603158	
74	72	0.972972973	0	1	2	2	0.999048222	0.229409133	
74	73	0.986486486	1	1	1	2	0.999768502	0.244246249	
76	39	0.513157895	0	1	1	1	0.080466569	1.899970828	
76	40	0.526315789	1	1	4	1	0.156434465	1.177502837	
76	41	0.539473684	2	1	1	1	0.227853509	0.895453064	
76	42	0.552631579	0	2	2	2	0.294755174	0.736875711	
76	43	0.565789474	1	2	1	2	0.35723089	0.630084593	
76	44	0.578947368	2	2	4	2	0.415415013	0.507438062	
76	45	0.592105263	0	1	1	1	0.469471563	0.345544324	
76	46	0.605263158	1	1	2	1	0.51958395	0.21104203	
76	47	0.618421053	2	1	1	1	0.565947094	0.20379013	
76	48	0.631578947	0	1	4	4	0.608761429	0.192667	
76	49	0.644736842	1	1	1	4	0.648228395	0.202348275	
76	50	0.657894737	2	1	2	4	0.684547106	0.236262364	
76	51	0.671052632	0	1	1	1	0.717911923	0.254886386	
76	52	0.684210526	1	1	4	1	0.748510748	0.272550678	
76	53	0.697368421	2	1	1	1	0.776523863	0.281556037	
76	54	0.710526316	0	2	2	2	0.802123193	0.274221271	
76	55	0.723684211	1	2	1	2	0.825471897	0.268426814	
76	56	0.736842105	2	2	4	2	0.846724199	0.26638671	
76	57	0.75	0	1	19	19	0.866025404	0.249604232	
76	58	0.763157895	1	1	2	19	0.883512044	0.213427941	
76	59	0.776315789	2	1	1	19	0.89931213	0.171648196	
76	60	0.789473684	0	1	4	4	0.913545458	0.139013604	
76	61	0.802631579	1	1	1	4	0.926323968	0.12034753	
76	62	0.815789474	2	1	2	4	0.937752132	0.115188724	
76	63	0.828947368	0	1	1	1	0.947927346	0.120765564	
76	64	0.842105263	1	1	4	1	0.956940336	0.130194434	

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Balanced			Maximum Parallel		THD - Total Harmonic Distortion	
		Slot/Pole Ratio	Winding All Slots Filled	Balanced Winding	Ct	Paths	Kp	Distortion
76	65	0.855263158	2	1	1	1	0.964875553	0.138243551
76	66	0.868421053	0	2	2	2	0.971811568	0.145338011
76	67	0.881578947	1	2	1	2	0.977821444	0.153783751
76	68	0.894736842	2	2	4	2	0.9829731	0.162913532
76	69	0.907894737	0	1	1	1	0.987329656	0.170036452
76	70	0.921052632	1	1	2	1	0.990949762	0.174843151
76	71	0.934210526	2	1	1	1	0.993887904	0.181056983
76	72	0.947368421	0	1	4	4	0.996194698	0.193131583
76	73	0.960526316	1	1	1	4	0.997917161	0.211194518
76	74	0.973684211	2	1	2	4	0.999098966	0.230367049
76	75	0.986842105	0	1	1	1	0.999780683	0.244520823
78	45	0.576923077	0	2	3	3	0.406736643	0.528308632
78	46	0.58974359	1	2	2	3	0.460065038	0.377140206
78	47	0.602564103	2	2	1	3	0.509616643	0.227311728
78	54	0.692307692	0	1	6	6	0.766044443	0.28034481
78	55	0.705128205	1	1	1	6	0.791902246	0.278255713
78	56	0.717948718	2	1	2	6	0.815560869	0.269799052
78	63	0.807692308	0	2	3	3	0.930873749	0.116823889
78	64	0.820512821	1	2	2	3	0.941544065	0.116253721
78	65	0.833333333	2	2	13	3	0.951056516	0.123848433
78	72	0.923076923	0	1	6	6	0.991444861	0.175576734
78	73	0.935897436	1	1	1	6	0.994217907	0.182216166
78	74	0.948717949	2	1	2	6	0.996397489	0.194759969
80	41	0.5125	2	2	1	1	0.076549253	1.943663687
80	42	0.525	0	1	2	2	0.149042266	1.225362448
80	43	0.5375	1	1	1	2	0.217430176	0.926408098
80	44	0.55	2	1	4	2	0.281732557	0.761620727
80	45	0.5625	0	1	5	5	0.342020143	0.657104652
80	46	0.575	1	1	2	5	0.39840109	0.547282825
80	47	0.5875	2	1	1	5	0.451010119	0.406650882

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		Kp	Distortion	THD - Total Harmonic
			Winding All Slots Filled	Balanced Winding		Paths				
80	48	0.6	0	2	16	16	0.5	0.249604232		
80	49	0.6125	1	2	1	16	0.545534901	0.199692718		
80	50	0.625	2	2	10	16	0.587785252	0.201330169		
80	51	0.6375	0	2	1	1	0.626923806	0.190358716		
80	52	0.65	1	2	4	1	0.663122658	0.216878644		
80	53	0.6625	2	2	1	1	0.696551029	0.244099132		
80	54	0.675	0	1	2	2	0.727373642	0.259900638		
80	55	0.6875	1	1	5	2	0.755749574	0.276438918		
80	56	0.7	2	1	8	2	0.781831482	0.281021751		
80	57	0.7125	0	2	1	1	0.805765106	0.272804756		
80	58	0.725	1	2	2	1	0.827688998	0.268317086		
80	59	0.7375	2	2	1	1	0.847734428	0.26603413		
80	60	0.75	0	1	20	20	0.866025404	0.249604232		
80	61	0.7625	1	1	1	20	0.882678798	0.21552		
80	62	0.775	2	1	2	20	0.89780454	0.175587301		
80	63	0.7875	0	2	1	1	0.911505852	0.143032176		
80	64	0.8	1	2	16	1	0.923879533	0.122971276		
80	65	0.8125	2	2	5	1	0.935016243	0.11528497		
80	66	0.825	0	1	2	2	0.945000819	0.118332187		
80	67	0.8375	1	1	1	2	0.953912581	0.12690222		
80	68	0.85	2	1	4	2	0.961825643	0.135272043		
80	69	0.8625	0	2	1	1	0.968809218	0.142083537		
80	70	0.875	1	2	10	1	0.974927912	0.149341528		
80	71	0.8875	2	2	1	1	0.980242011	0.157972191		
80	72	0.9	0	1	8	8	0.984807753	0.166114912		
80	73	0.9125	1	1	1	8	0.98867759	0.171864695		
80	74	0.925	2	1	2	8	0.991900435	0.176320946		
80	75	0.9375	0	1	5	5	0.994521895	0.183418691		
80	76	0.95	1	1	4	5	0.996584493	0.196366609		
80	77	0.9625	2	1	1	5	0.998127873	0.214156632		
80	78	0.975	0	1	2	2	0.999188998	0.232098334		
80	79	0.9875	1	1	1	2	0.99980233	0.245010739		

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		Kp	THD - Total Harmonic Distortion	
			Winding All Slots Filled	Balanced Winding		Paths				
82	43	0.524390244	1	2	1	2		0.145601168	1.249568627	
82	44	0.536585366	2	2	2	2		0.21256529	0.941388503	
82	45	0.548780488	0	1	1	1		0.275637356	0.774164557	
82	46	0.56097561	1	1	2	1		0.334879612	0.66926118	
82	47	0.573170732	2	1	1	1		0.390389275	0.564685642	
82	48	0.585365854	0	2	2	2		0.44228869	0.433744453	
82	49	0.597560976	1	2	1	2		0.490717552	0.275959129	
82	50	0.609756098	2	2	2	2		0.535826795	0.199779163	
82	51	0.62195122	0	1	1	1		0.577773831	0.203765742	
82	52	0.634146341	1	1	2	1		0.616718873	0.190434964	
82	53	0.646341463	2	1	1	1		0.652822118	0.206589293	
82	54	0.658536585	0	2	2	2		0.686241638	0.23750469	
82	55	0.670731707	1	2	1	2		0.717131805	0.254496033	
82	56	0.682926829	2	2	2	2		0.745642165	0.270857005	
82	57	0.695121951	0	1	1	1		0.771916651	0.281398704	
82	58	0.707317073	1	1	2	1		0.796093066	0.276658271	
82	59	0.719512195	2	1	1	1		0.818302776	0.269249204	
82	60	0.731707317	0	2	2	2		0.838670568	0.267916796	
82	61	0.743902439	1	2	1	2		0.857314628	0.260078518	
82	62	0.756097561	2	2	2	2		0.874346616	0.23466859	
82	63	0.768292683	0	1	1	1		0.889871809	0.196804182	
82	64	0.780487805	1	1	2	1		0.903989293	0.159877301	
82	65	0.792682927	2	1	1	1		0.916792195	0.133167411	
82	66	0.804878049	0	2	2	2		0.928367933	0.118537791	
82	67	0.817073171	1	2	1	2		0.938798482	0.115346116	
82	68	0.829268293	2	2	2	2		0.948160648	0.120980911	
82	69	0.841463415	0	1	1	1		0.956526344	0.129747158	
82	70	0.853658537	1	1	2	1		0.963962861	0.137364748	
82	71	0.865853659	2	1	1	1		0.970533135	0.143895554	
82	72	0.87804878	0	2	2	2		0.976296007	0.151353947	
82	73	0.890243902	1	2	1	2		0.98130647	0.159894583	

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		Kp	THD - Total Harmonic Distortion
			Winding All Slots Filled	Balanced Winding		Paths	Paths		
82	74	0.902439024	2	2	2	2	2	0.98561591	0.16744332
82	75	0.914634146	0	1	1	1	1	0.989272333	0.17263157
82	76	0.926829268	1	1	2	1	1	0.99232058	0.17708784
82	77	0.93902439	2	1	1	1	1	0.994802533	0.18465792
82	78	0.951219512	0	2	2	2	2	0.996757308	0.197945486
82	79	0.963414634	1	2	1	2	2	0.998221437	0.215532176
82	80	0.975609756	2	2	2	2	2	0.999229036	0.232881404
82	81	0.987804878	0	1	1	1	1	0.99981197	0.245229761
84	45	0.535714286	0	1	3	3	3	0.207911691	0.956097664
84	46	0.547619048	1	1	2	3	3	0.269796771	0.786829429
84	47	0.55952381	2	1	1	3	3	0.328024858	0.680701691
84	54	0.642857143	0	2	6	6	6	0.64278761	0.197900559
84	55	0.654761905	1	2	1	6	6	0.6761749	0.229423477
84	56	0.666666667	2	2	28	6	6	0.707106781	0.249604232
84	63	0.75	0	1	21	21	21	0.866025404	0.249604232
84	64	0.761904762	1	1	4	21	21	0.881921264	0.21739879
84	65	0.773809524	2	1	1	21	21	0.896426937	0.179230193
84	72	0.857142857	0	1	12	12	12	0.965925826	0.139252172
84	73	0.869047619	1	1	1	12	12	0.972118197	0.145699314
84	74	0.880952381	2	1	2	12	12	0.977555239	0.15334635
84	81	0.964285714	0	1	3	3	3	0.998308158	0.216841025
84	82	0.976190476	1	1	2	3	3	0.999266181	0.233615185
84	83	0.988095238	2	1	1	3	3	0.999820923	0.245433599
86	44	0.511627907	2	1	2	2	2	0.071339183	2.000762199
86	45	0.523255814	0	2	1	1	1	0.139173101	1.298169393
86	46	0.534883721	1	2	2	1	1	0.203456013	0.970593383
86	47	0.546511628	2	2	1	1	1	0.264195402	0.799586083
86	48	0.558139535	0	1	2	2	2	0.321439465	0.691570367
86	49	0.569767442	1	1	1	2	2	0.375267005	0.595707344
86	50	0.581395349	2	1	2	2	2	0.425779292	0.480755868

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		THD - Total Harmonic Distortion	
			Winding All Slots Filled	Balanced Winding		Paths	Kp		
86	51	0.593023256	0	2	1	1	0.473093557	0.333302298	
86	52	0.604651163	1	2	2	1	0.517337814	0.214058075	
86	53	0.61627907	2	2	1	1	0.558646766	0.202497505	
86	54	0.627906977	0	1	2	2	0.597158592	0.197575515	
86	55	0.639534884	1	1	1	2	0.633012454	0.192160848	
86	56	0.651162791	2	1	2	2	0.666346578	0.220117697	
86	57	0.662790698	0	2	1	1	0.697296801	0.244520085	
86	58	0.674418605	1	2	2	1	0.725995492	0.259133964	
86	59	0.686046512	2	2	1	1	0.75257077	0.274816669	
86	60	0.697674419	0	1	2	2	0.777145961	0.281532149	
86	61	0.709302326	1	1	1	2	0.799839245	0.275144622	
86	62	0.720930233	2	1	2	2	0.820763441	0.268872152	
86	63	0.73255814	0	2	1	1	0.840025923	0.267784926	
86	64	0.744186047	1	2	2	1	0.85772861	0.259698122	
86	65	0.755813953	2	2	1	1	0.873968033	0.235447483	
86	66	0.76744186	0	1	2	2	0.888835449	0.199570312	
86	67	0.779069767	1	1	1	2	0.902416995	0.163745349	
86	68	0.790697674	2	1	2	2	0.914793868	0.136683612	
86	69	0.802325581	0	2	1	1	0.926042521	0.120624611	
86	70	0.813953488	1	2	2	1	0.936234871	0.115150918	
86	71	0.825581395	2	2	1	1	0.945438516	0.11866113	
86	72	0.837209302	0	1	2	2	0.953716951	0.126689556	
86	73	0.848837209	1	1	1	2	0.961129784	0.134575136	
86	74	0.860465116	2	1	2	2	0.967732947	0.141007177	
86	75	0.872093023	0	2	1	1	0.973578903	0.147514068	
86	76	0.88372093	1	2	2	1	0.978716845	0.155292516	
86	77	0.895348837	2	2	1	1	0.983192891	0.163306938	
86	78	0.906976744	0	1	2	2	0.987050263	0.169635505	
86	79	0.918604651	1	1	1	2	0.990329466	0.173995857	
86	80	0.930232558	2	1	2	2	0.993068457	0.1787182	
86	81	0.941860465	0	2	1	1	0.995302796	0.187217997	
86	82	0.953488372	1	2	2	1	0.997065801	0.201001849	



Appendix 1: Slot - Pol Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		Kp	THD - Total Harmonic Distortion
			Winding All Slots Filled	Balanced Winding		Paths	Paths		
86	83	0.965116279	2	2	1	1	1	0.998388689	0.218086093
86	84	0.976744186	0	1	2	2	2	0.999300705	0.234303517
86	85	0.988372093	1	1	1	2	2	0.99982925	0.245623614
88	45	0.511363636	0	1	1	1	1	0.069756474	2.01781261
88	46	0.522727273	1	1	2	1	1	0.136166649	1.322421127
88	47	0.534090909	2	1	1	1	1	0.199185985	0.984937493
88	48	0.545454545	0	2	8	8	8	0.258819045	0.812389602
88	49	0.556818182	1	2	1	8	8	0.315108218	0.702007881
88	50	0.568181818	2	2	2	8	8	0.368124553	0.609641573
88	51	0.579545455	0	1	1	1	1	0.417960345	0.501072882
88	52	0.590909091	1	1	4	1	1	0.464723172	0.361566081
88	53	0.602272727	2	1	1	1	1	0.508531119	0.229523402
88	54	0.613636364	0	2	2	2	2	0.549508978	0.200401777
88	55	0.625	1	2	11	2	2	0.587785252	0.201330169
88	56	0.636363636	2	2	8	2	2	0.623489802	0.189969977
88	57	0.647727273	0	1	1	1	1	0.656752024	0.210444788
88	58	0.659090909	1	1	2	1	1	0.687699459	0.238535408
88	59	0.670454545	2	1	1	1	1	0.71645674	0.254160372
88	60	0.681818182	0	1	4	4	4	0.743144825	0.269343888
88	61	0.693181818	1	1	1	4	4	0.767880446	0.280774906
88	62	0.704545455	2	1	2	4	4	0.790775737	0.278653118
88	63	0.715909091	0	1	1	1	1	0.811938006	0.270734747
88	64	0.727272727	1	1	8	1	1	0.831469612	0.268212778
88	65	0.738636364	2	1	1	1	1	0.849467935	0.265321755
88	66	0.75	0	1	22	22	22	0.866025404	0.249604232
88	67	0.761363636	1	1	1	22	22	0.881229582	0.219093677
88	68	0.772727273	2	1	4	22	22	0.895163291	0.182599153
88	69	0.784090909	0	1	1	1	1	0.907904755	0.150730148
88	70	0.795454545	1	1	2	1	1	0.919527773	0.12879784
88	71	0.806818182	2	1	1	1	1	0.930101896	0.117290838
88	72	0.818181818	0	2	8	8	8	0.939692621	0.115564239

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		THD - Total Harmonic Distortion	
			Winding All Slots Filled	Balanced Winding		Paths	Kp		
88	73	0.829545455	1	2	1	8	0.94836158	0.121168554	
88	74	0.840909091	2	2	2	8	0.956166735	0.129357338	
88	75	0.852272727	0	1	1	1	0.963162567	0.13658833	
88	76	0.863636364	1	1	4	1	0.969400266	0.142690529	
88	77	0.875	2	1	11	1	0.974927912	0.149341528	
88	78	0.886363636	0	2	2	2	0.979790652	0.157167442	
88	79	0.897727273	1	2	1	2	0.984030868	0.164785314	
88	80	0.909090909	2	2	8	2	0.987688341	0.170539182	
88	81	0.920454545	0	1	1	1	0.990800403	0.174633277	
88	82	0.931818182	1	1	2	1	0.99340209	0.179588252	
88	83	0.943181818	2	1	1	1	0.995526273	0.188524754	
88	84	0.954545455	0	1	4	4	0.997203797	0.202472832	
88	85	0.965909091	1	1	1	4	0.998463604	0.219270346	
88	86	0.977272727	2	1	2	4	0.999332848	0.234949902	
88	87	0.988636364	0	1	1	1	0.999837011	0.24580102	
90	54	0.6	0	2	18	18	0.5	0.249604232	
90	55	0.611111111	1	2	5	18	0.540640817	0.199318288	
90	56	0.622222222	2	2	2	18	0.578671296	0.203635138	
90	81	0.9	0	1	9	9	0.984807753	0.166114912	
90	82	0.911111111	1	1	2	9	0.988280424	0.171342017	
90	83	0.922222222	2	1	1	9	0.991237775	0.175261906	
92	47	0.510869565	2	2	1	1	0.066792634	2.049297821	
92	48	0.52173913	0	2	4	4	0.130526192	1.37050075	
92	49	0.532608696	1	2	1	4	0.191158629	1.013414647	
92	50	0.543478261	2	2	2	4	0.248689887	0.8379287	
92	51	0.554347826	0	2	1	1	0.303152674	0.722095687	
92	52	0.565217391	1	2	4	1	0.354604887	0.634871592	
92	53	0.576086957	2	2	1	1	0.403123429	0.536651926	
92	54	0.586956522	0	1	2	2	0.44879918	0.413656044	
92	55	0.597826087	1	1	1	2	0.491732925	0.272894467	

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		Kp	THD - Total Harmonic Distortion
			Winding All Slots Filled	Balanced Winding		Paths	Paths		
92	56	0.608695652	2	1	4	2	2	0.532032077	0.200919998
92	57	0.619565217	0	2	1	1	1	0.569808058	0.204115875
92	58	0.630434783	1	2	2	1	1	0.605174215	0.194073445
92	59	0.641304348	2	2	1	1	1	0.638244184	0.1948268
92	60	0.652173913	0	2	4	4	4	0.669130606	0.222860679
92	61	0.663043478	1	2	1	4	4	0.697944155	0.244880448
92	62	0.673913043	2	2	2	4	4	0.724792787	0.258475468
92	63	0.684782609	0	2	1	1	1	0.749781203	0.273279086
92	64	0.695652174	1	2	4	1	1	0.773010453	0.281489772
92	65	0.706521739	2	2	1	1	1	0.79457768	0.277253465
92	66	0.717391304	0	1	2	2	2	0.814575952	0.270030285
92	67	0.72826087	1	1	1	2	2	0.833094188	0.268177093
92	68	0.739130435	2	1	4	2	2	0.850217136	0.264969061
92	69	0.75	0	1	23	23	23	0.866025404	0.249604232
92	70	0.760869565	1	1	2	23	23	0.880595532	0.220629124
92	71	0.77173913	2	1	1	23	23	0.894000088	0.185716292
92	72	0.782608696	0	2	4	4	4	0.906307787	0.154370684
92	73	0.793478261	1	2	1	4	4	0.917583626	0.131849522
92	74	0.804347826	2	2	2	4	4	0.927889027	0.118929404
92	75	0.815217391	0	2	1	1	1	0.937281989	0.115152795
92	76	0.826086957	1	2	4	1	1	0.945817242	0.118956414
92	77	0.836956522	2	2	1	1	1	0.953546398	0.126504385
92	78	0.847826087	0	1	2	2	2	0.960518112	0.133955165
92	79	0.858695652	1	1	1	2	2	0.966778225	0.140074588
92	80	0.869565217	2	1	4	2	2	0.97236992	0.146000776
92	81	0.880434783	0	2	1	1	1	0.977333858	0.152986761
92	82	0.891304348	1	2	2	1	1	0.98170832	0.160624769
92	83	0.902173913	2	2	1	1	1	0.985529339	0.167304018
92	84	0.913043478	0	2	4	4	4	0.988830826	0.172063705
92	85	0.923913043	1	2	1	4	4	0.991644696	0.175893575
92	86	0.934782609	2	2	2	4	4	0.994000975	0.181438187
92	87	0.945652174	0	2	1	1	1	0.99592792	0.191159293

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		THD - Total Harmonic Distortion	
			Winding All Slots Filled	Balanced Winding		Paths	Kp		
92	88	0.956521739	1	2	4	1	0.997452115	0.205290332	
92	89	0.967391304	2	2	1	1	0.998598572	0.221468222	
92	90	0.97826087	0	1	2	2	0.999390827	0.236129319	
92	91	0.989130435	1	1	1	2	0.999851024	0.246122226	
94	48	0.510638298	0	2	2	2	0.065403129	2.063839299	
94	49	0.521276596	1	2	1	2	0.127877162	1.394214631	
94	50	0.531914894	2	2	2	2	0.187381315	1.027659132	
94	51	0.542553191	0	1	1	1	0.24391372	0.850564119	
94	52	0.553191489	1	1	2	1	0.297503054	0.731955836	
94	53	0.563829787	2	1	1	1	0.348201635	0.646325059	
94	54	0.574468085	0	2	2	2	0.396079766	0.552403123	
94	55	0.585106383	1	2	1	2	0.441221101	0.43695748	
94	56	0.595744681	2	2	2	2	0.483718887	0.297983109	
94	57	0.606382979	0	1	1	1	0.523672914	0.206520775	
94	58	0.617021277	1	1	2	1	0.561187065	0.20302644	
94	59	0.627659574	2	1	1	1	0.596367359	0.197922577	
94	60	0.638297872	0	2	2	2	0.629320391	0.190897078	
94	61	0.64893617	1	2	1	2	0.660152121	0.21386937	
94	62	0.659574468	2	2	2	2	0.688966919	0.239403502	
94	63	0.670212766	0	1	1	1	0.715866849	0.253868533	
94	64	0.680851064	1	1	2	1	0.740951125	0.267998974	
94	65	0.691489362	2	1	1	1	0.764315721	0.279859724	
94	66	0.70212766	0	2	2	2	0.786053095	0.280102639	
94	67	0.712765957	1	2	1	2	0.806252019	0.272623855	
94	68	0.723404255	2	2	2	2	0.824997475	0.268457393	
94	69	0.734042553	0	1	1	1	0.842370619	0.267455084	
94	70	0.744680851	1	1	2	1	0.858448794	0.259009488	
94	71	0.755319149	2	1	1	1	0.873305571	0.236788864	
94	72	0.765957447	0	2	2	2	0.887010833	0.204398342	
94	73	0.776595745	1	2	1	2	0.89963087	0.170822923	
94	74	0.787234043	2	2	2	2	0.91122849	0.14359836	

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		THD - Total Harmonic Distortion	
			Winding All Slots Filled	Balanced Winding		Paths	Kp		
94	75	0.79787234	0	1	1	1	0.921863152	0.125493162	
94	76	0.808510638	1	1	2	1	0.931591088	0.116439696	
94	77	0.819148936	2	1	1	1	0.94046545	0.115813672	
94	78	0.829787234	0	2	2	2	0.948536442	0.121333438	
94	79	0.840425532	1	2	1	2	0.955851461	0.129014774	
94	80	0.85106383	2	2	2	2	0.962455236	0.135895355	
94	81	0.861702128	0	1	1	1	0.968389961	0.141660309	
94	82	0.872340426	1	1	2	1	0.973695424	0.147665949	
94	83	0.882978723	2	1	1	1	0.978409141	0.154767813	
94	84	0.893617021	0	2	2	2	0.982566473	0.162181292	
94	85	0.904255319	1	2	1	2	0.986200747	0.168364038	
94	86	0.914893617	2	2	2	2	0.989343368	0.172722469	
94	87	0.925531915	0	1	1	1	0.992023926	0.176537326	
94	88	0.936170213	1	1	2	1	0.994270302	0.182413747	
94	89	0.946808511	2	1	1	1	0.996108761	0.192475743	
94	90	0.957446809	0	2	2	2	0.99756405	0.206634776	
94	91	0.968085106	1	2	1	2	0.998659483	0.222487614	
94	92	0.978723404	2	2	2	2	0.999417022	0.236667922	
94	93	0.989361702	0	1	1	1	0.999857363	0.246267868	
96	54	0.5625	0	1	6	6	0.342020143	0.657104652	
96	55	0.572916667	1	1	1	6	0.389270106	0.567058909	
96	56	0.583333333	2	1	8	6	0.433883739	0.458394586	
96	63	0.65625	0	2	3	3	0.680172738	0.232832619	
96	64	0.666666667	1	2	32	3	0.707106781	0.249604232	
96	65	0.677083333	2	2	1	3	0.732268667	0.262723859	
96	72	0.75	0	1	24	24	0.866025404	0.249604232	
96	73	0.760416667	1	1	1	24	0.880012204	0.222025618	
96	74	0.770833333	2	1	2	24	0.892925858	0.188602834	
96	81	0.84375	0	2	3	3	0.957989512	0.13131874	
96	82	0.854166667	1	2	2	3	0.964253495	0.13764517	
96	83	0.864583333	2	2	1	3	0.969887382	0.143201342	

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel Paths	Kp	THD - Total Harmonic Distortion
			Winding All Slots Filled	Balanced Winding				
96	90	0.9375	0	1	6	6	0.994521895	0.183418691
96	91	0.947916667	1	1	1	6	0.99627782	0.193785107
96	92	0.958333333	2	1	4	6	0.997668769	0.207935803
98	50	0.510204082	2	1	2	2	0.06279052	2.090761402
98	51	0.520408163	0	2	1	1	0.122888291	1.440751943
98	52	0.530612245	1	2	2	1	0.180255038	1.056388324
98	53	0.540816327	2	2	1	1	0.234886046	0.875368857
98	54	0.551020408	0	1	2	2	0.286803233	0.75167648
98	55	0.56122449	1	1	1	2	0.336049393	0.667288698
98	56	0.571428571	2	1	14	2	0.382683432	0.580766246
98	57	0.581632653	0	2	1	1	0.426776435	0.478077991
98	58	0.591836735	1	2	2	1	0.468408441	0.349138075
98	59	0.602040816	2	2	1	1	0.5076658	0.231345199
98	60	0.612244898	0	1	2	2	0.544639035	0.199575136
98	61	0.62244898	1	1	1	2	0.579421098	0.203511963
98	62	0.632653061	2	1	2	2	0.612105983	0.191549364
98	63	0.642857143	0	2	7	7	0.64278761	0.197900559
98	64	0.653061224	1	2	2	7	0.671558955	0.225192784
98	65	0.663265306	2	2	1	7	0.698511365	0.245192515
98	66	0.673469388	0	1	2	2	0.723734038	0.257903904
98	67	0.683673469	1	1	1	2	0.74731363	0.27185119
98	68	0.693877551	2	1	2	2	0.769333971	0.281051233
98	69	0.704081633	0	2	1	1	0.789875872	0.278957915
98	70	0.714285714	1	2	14	1	0.809016994	0.271648756
98	71	0.724489796	2	2	1	1	0.826831784	0.268353598
98	72	0.734693878	0	1	2	2	0.843391446	0.267263301
98	73	0.744897959	1	1	1	2	0.858763958	0.258697285
98	74	0.755102041	2	1	2	2	0.873014113	0.237370214
98	75	0.765306122	0	2	1	1	0.886203579	0.206512044
98	76	0.775510204	1	2	2	1	0.898390982	0.174048435
98	77	0.785714286	2	2	7	1	0.909631995	0.146945689

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum		THD - Total	
			Winding All Slots Filled	Balanced Winding		Parallel Paths	Kp	Harmonic Distortion	
98	78	0.795918367	0	1	2	2	0.919979444	0.128127458	
98	79	0.806122449	1	1	1	2	0.929483408	0.117704501	
98	80	0.816326531	2	1	2	2	0.938191336	0.115241827	
98	81	0.826530612	0	2	1	1	0.946148157	0.119222227	
98	82	0.836734694	1	2	2	1	0.953396392	0.126341729	
98	83	0.846938776	2	2	1	1	0.959976268	0.133400054	
98	84	0.857142857	0	1	14	14	0.965925826	0.139252172	
98	85	0.867346939	1	1	1	14	0.971281032	0.144727446	
98	86	0.87755102	2	1	2	14	0.976075878	0.151019244	
98	87	0.887755102	0	2	1	1	0.980342485	0.158152376	
98	88	0.897959184	1	2	2	1	0.984111204	0.164924862	
98	89	0.908163265	2	2	1	1	0.987410705	0.170151208	
98	90	0.918367347	0	1	2	2	0.990268069	0.173914854	
98	91	0.928571429	1	1	7	2	0.992708874	0.177885384	
98	92	0.93877551	2	1	2	2	0.994757279	0.184449132	
98	93	0.948979592	0	2	1	1	0.996436098	0.195083248	
98	94	0.959183673	1	2	2	1	0.997766879	0.209193497	
98	95	0.969387755	2	2	1	1	0.998769969	0.224381073	
98	96	0.979591837	0	1	2	2	0.999464587	0.237655078	
98	97	0.989795918	1	1	1	2	0.999868884	0.246533159	
100	51	0.51	0	1	1	1	0.061560906	2.103229178	
100	52	0.52	1	1	4	1	0.12053668	1.463498436	
100	53	0.53	2	1	1	1	0.176890275	1.070940573	
100	54	0.54	0	2	2	2	0.230615871	0.887487812	
100	55	0.55	1	2	5	2	0.281732557	0.761620727	
100	56	0.56	2	2	4	2	0.330279062	0.676958838	
100	57	0.57	0	1	1	1	0.376309372	0.593637209	
100	58	0.58	1	1	2	1	0.419889102	0.496170422	
100	59	0.59	2	1	1	1	0.461092501	0.373722607	
100	60	0.6	0	2	20	20	0.5	0.249604232	
100	61	0.61	1	2	1	20	0.536696194	0.19962126	



Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		THD - Total Harmonic Distortion	
			Winding All Slots Filled	Balanced Winding		Paths	Kp		
100	62	0.62	2	2	2	20	0.571268215	0.204158758	
100	63	0.63	0	1	1	1	0.60380441	0.194650337	
100	64	0.64	1	1	4	1	0.634393284	0.192767156	
100	65	0.65	2	1	5	1	0.663122658	0.216878644	
100	66	0.66	0	2	2	2	0.690079011	0.24014423	
100	67	0.67	1	2	1	2	0.71534697	0.253612369	
100	68	0.68	2	2	4	2	0.739008917	0.266804756	
100	69	0.69	0	1	1	1	0.761144712	0.278779173	
100	70	0.7	1	1	10	1	0.781831482	0.281021751	
100	71	0.71	2	1	1	1	0.801143489	0.274615605	
100	72	0.72	0	1	4	4	0.819152044	0.269106858	
100	73	0.73	1	1	1	4	0.835925479	0.268086863	
100	74	0.74	2	1	2	4	0.851529138	0.26428199	
100	75	0.75	0	1	25	25	0.866025404	0.249604232	
100	76	0.76	1	1	4	25	0.879473751	0.223300423	
100	77	0.77	2	1	1	25	0.891930808	0.191278722	
100	78	0.78	0	2	2	2	0.903450435	0.16119157	
100	79	0.79	1	2	1	2	0.914083811	0.137996511	
100	80	0.8	2	2	20	2	0.923879533	0.122971276	
100	81	0.81	0	1	1	1	0.932883705	0.11587055	
100	82	0.82	1	1	2	1	0.941140048	0.116076553	
100	83	0.83	2	1	1	1	0.948689998	0.121479415	
100	84	0.84	0	1	4	4	0.955572806	0.128711511	
100	85	0.85	1	1	5	4	0.961825643	0.135272043	
100	86	0.86	2	1	2	4	0.967483697	0.140762094	
100	87	0.87	0	1	1	1	0.972580268	0.146256155	
100	88	0.88	1	1	4	1	0.977146866	0.152686048	
100	89	0.89	2	1	1	1	0.981213297	0.159725441	
100	90	0.9	0	1	10	10	0.984807753	0.166114912	
100	91	0.91	1	1	1	10	0.987956898	0.170907248	
100	92	0.92	2	1	4	10	0.990685946	0.174475274	
100	93	0.93	0	1	1	1	0.993018737	0.178596967	

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole		Balanced		Ct	Maximum Parallel		THD - Total Harmonic	
		Ratio	Winding	Slots Filled	Balanced Winding		Paths	Kp	Distortion	
100	94	0.94	1	1	1	2	1	0.994977815	0.185500958	
100	95	0.95	1	2	1	5	1	0.996584493	0.196366609	
100	96	0.96	1	0	1	4	4	0.997858923	0.210408244	
100	97	0.97	1	1	1	1	4	0.998820159	0.225260326	
100	98	0.98	1	2	1	2	4	0.999486216	0.238107884	
100	99	0.99	1	0	1	1	1	0.999874128	0.246654154	
102	54	0.529411765	0	0	2	6	6	0.173648178	1.085649275	
102	55	0.539215686	1	1	2	1	6	0.226496767	0.899401054	
102	56	0.549019608	2	2	2	2	6	0.276835511	0.771645554	
102	63	0.617647059	0	0	1	3	3	0.563320058	0.203411399	
102	64	0.62745098	1	1	1	2	3	0.595699304	0.198213196	
102	65	0.637254902	2	2	1	1	3	0.626185198	0.190237409	
102	72	0.705882353	0	0	2	6	6	0.793353334	0.277721125	
102	73	0.715686275	1	1	2	1	6	0.811539059	0.270851659	
102	74	0.725490196	2	2	2	2	6	0.828509649	0.268287909	
102	81	0.794117647	0	0	1	3	3	0.918216107	0.13082749	
102	82	0.803921569	1	1	1	2	3	0.927502451	0.119260123	
102	83	0.81372549	2	2	1	1	3	0.936044738	0.11516218	
102	90	0.882352941	0	0	2	6	6	0.978147601	0.154326845	
102	91	0.892156863	1	1	2	1	6	0.982027556	0.161204811	
102	92	0.901960784	2	2	2	2	6	0.985459518	0.167191123	
102	99	0.970588235	0	0	1	3	3	0.998867339	0.226097856	
102	100	0.980392157	1	1	1	2	3	0.99950656	0.238536048	
102	101	0.990196078	2	2	1	1	3	0.999879063	0.246768171	
104	53	0.509615385	2	2	2	1	1	0.059240628	2.126374657	
104	54	0.519230769	0	0	1	2	2	0.116092914	1.507797807	
104	55	0.528846154	1	1	1	1	2	0.170522193	1.100528156	
104	56	0.538461538	2	2	1	8	2	0.222520934	0.911107652	
104	57	0.548076923	0	0	2	1	1	0.272103465	0.781750376	
104	58	0.557692308	1	1	2	2	1	0.31930153	0.695090731	

Appendix 1: Slot - Pol Combination Comparison Chart for Coil Span f 1 Tooth

Balanced					Maximum Parallel		THD - Total Harmonic	
Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Paths	Kp	Distortion
			Winding All Slots Filled	Balanced Winding				
104	59	0.567307692	2	2	1	1	0.364160575	0.617191281
104	60	0.576923077	0	2	4	4	0.406736643	0.528308632
104	61	0.586538462	1	2	1	4	0.447093793	0.418997924
104	62	0.596153846	2	2	2	4	0.485301963	0.29288233
104	63	0.605769231	0	2	1	1	0.521435203	0.208841575
104	64	0.615384615	1	2	8	1	0.555570233	0.201791183
104	65	0.625	2	2	13	1	0.587785252	0.201330169
104	66	0.634615385	0	1	2	2	0.618158986	0.190209586
104	67	0.644230769	1	1	1	2	0.646769912	0.201085622
104	68	0.653846154	2	1	4	2	0.673695644	0.227187156
104	69	0.663461538	0	2	1	1	0.699012447	0.245465455
104	70	0.673076923	1	2	2	1	0.722794864	0.257403142
104	71	0.682692308	2	2	1	1	0.745115426	0.270540204
104	72	0.692307692	0	1	8	8	0.766044443	0.280344481
104	73	0.701923077	1	1	1	8	0.785649855	0.280207315
104	74	0.711538462	2	1	2	8	0.80399713	0.273480257
104	75	0.721153846	0	2	1	1	0.821149209	0.268822649
104	76	0.730769231	1	2	4	1	0.837166478	0.268023535
104	77	0.740384615	2	2	1	1	0.852106774	0.263950324
104	78	0.75	0	1	26	26	0.866025404	0.249604232
104	79	0.759615385	1	1	1	26	0.878975191	0.224468155
104	80	0.769230769	2	1	8	26	0.891006524	0.193762432
104	81	0.778846154	0	2	1	1	0.902167425	0.164368318
104	82	0.788461538	1	2	2	1	0.912503616	0.141034076
104	83	0.798076923	2	2	1	1	0.922058603	0.125235021
104	84	0.807692308	0	2	4	4	0.930873749	0.116823889
104	85	0.817307692	1	2	1	4	0.938988361	0.11538604
104	86	0.826923077	2	2	2	4	0.946439773	0.119462306
104	87	0.836538462	0	2	1	1	0.953263431	0.126197738
104	88	0.846153846	1	2	8	1	0.959492974	0.132900247
104	89	0.855769231	2	2	1	1	0.965160315	0.138516987
104	90	0.865384615	0	1	2	2	0.970295726	0.143637911

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel Paths	Kp	THD - Total Harmonic Distortion
			Winding All Slots Filled	Balanced Winding				
104	91	0.875	1	1	13	2	0.974927912	0.149341528
104	92	0.884615385	2	1	4	2	0.979084088	0.155926545
104	93	0.894230769	0	2	1	1	0.982790051	0.162584535
104	94	0.903846154	1	2	2	1	0.986070254	0.168161739
104	95	0.913461538	2	2	1	1	0.988947871	0.172214927
104	96	0.923076923	0	1	8	8	0.991444861	0.175576734
104	97	0.932692308	1	1	1	8	0.993582036	0.180102178
104	98	0.942307692	2	1	2	8	0.995379113	0.187652192
104	99	0.951923077	0	2	1	1	0.996854776	0.198877445
104	100	0.961538462	1	2	4	1	0.998026728	0.212711602
104	101	0.971153846	2	2	1	1	0.998911745	0.226895956
104	102	0.980769231	0	1	2	2	0.99952572	0.238941275
104	103	0.990384615	1	1	1	2	0.999883714	0.246875734
106	54	0.509433962	0	2	2	2	0.058144829	2.137123136
106	55	0.518867925	1	2	1	2	0.11399141	1.529306505
106	56	0.528301887	2	2	2	2	0.167506223	1.115583828
106	57	0.537735849	0	1	1	1	0.218681091	0.922614619
106	58	0.547169811	1	1	2	1	0.267528339	0.79192334
106	59	0.556603774	2	1	1	1	0.314076712	0.703714917
106	60	0.566037736	0	2	2	2	0.35836795	0.627995147
106	61	0.575471698	1	2	1	2	0.400453906	0.542697969
106	62	0.58490566	2	2	2	2	0.440394152	0.439430076
106	63	0.594339623	0	1	1	1	0.478253979	0.315971869
106	64	0.603773585	1	1	2	1	0.514102744	0.219071793
106	65	0.613207547	2	1	1	1	0.548012507	0.200104374
106	66	0.622641509	0	2	2	2	0.58005691	0.203397584
106	67	0.632075472	1	2	1	2	0.610310262	0.192121994
106	68	0.641509434	2	2	2	2	0.638846806	0.195196197
106	69	0.650943396	0	1	1	1	0.66574012	0.219512465
106	70	0.660377358	1	1	2	1	0.691062649	0.240783515
106	71	0.669811321	2	1	1	1	0.714885336	0.253385646

**Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth**

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum		THD - Total Harmonic Distortion
			Winding All Slots Filled	Balanced Winding		Parallel Paths	Kp	
106	72	0.679245283	0	2	2	2	0.737277337	0.265742909
106	73	0.688679245	1	2	1	2	0.758305808	0.27761979
106	74	0.698113208	2	2	2	2	0.778035754	0.281479684
106	75	0.70754717	0	1	1	1	0.796529918	0.276484073
106	76	0.716981132	1	1	2	1	0.813848717	0.270212285
106	77	0.726415094	2	1	1	1	0.83005021	0.268244697
106	78	0.735849057	0	2	2	2	0.845190086	0.266841566
106	79	0.745283019	1	2	1	2	0.859321681	0.258128464
106	80	0.754716981	2	2	2	2	0.872496007	0.238390179
106	81	0.764150943	0	1	1	1	0.884761797	0.210244445
106	82	0.773584906	1	1	2	1	0.896165557	0.179925184
106	83	0.783018868	2	1	1	1	0.906751628	0.153345803
106	84	0.79245283	0	2	2	2	0.916562256	0.133558345
106	85	0.801886792	1	2	1	2	0.92563766	0.121034768
106	86	0.811320755	2	2	2	2	0.934016109	0.115504271
106	87	0.820754717	0	1	1	1	0.941733996	0.116342032
106	88	0.830188679	1	1	2	1	0.948825917	0.121609527
106	89	0.839622642	2	1	1	1	0.955324742	0.128441258
106	90	0.849056604	0	2	2	2	0.961261696	0.134707921
106	91	0.858490566	1	2	1	2	0.966666429	0.139966314
106	92	0.867924528	2	2	2	2	0.971567089	0.145054422
106	93	0.877358491	0	1	1	1	0.975990396	0.150890392
106	94	0.886792453	1	1	2	1	0.979961705	0.157471453
106	95	0.896226415	2	1	1	1	0.983505075	0.163862096
106	96	0.905660377	0	2	2	2	0.986643332	0.169036348
106	97	0.91509434	1	2	1	2	0.989398131	0.172792512
106	98	0.924528302	2	2	2	2	0.991790014	0.176133162
106	99	0.933962264	0	1	1	1	0.993838464	0.180895268
106	100	0.943396226	1	1	2	1	0.995561965	0.18874359
106	101	0.952830189	2	1	1	1	0.996978044	0.200100351
106	102	0.962264151	0	2	2	2	0.998103329	0.213801993
106	103	0.971698113	1	2	1	2	0.99895359	0.227656801

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Maximum Parallel		THD - Total Harmonic Distortion	
			Winding	Balanced Winding	Ct	Paths	Kp	Distortion
106	104	0.981132075	2	2	2	2	0.999543784	0.239325132
106	105	0.990566038	0	1	1	1	0.999888102	0.24697732
108	81	0.75	0	1	27	27	0.866025404	0.249604232
108	82	0.759259259	1	1	2	27	0.878512251	0.225541264
108	83	0.768518519	2	1	1	27	0.89014574	0.196070915
110	56	0.509090909	2	1	2	2	0.056070447	2.157130997
110	57	0.518181818	0	2	1	1	0.110008221	1.570964892
110	58	0.527272727	1	2	2	1	0.161781997	1.146221167
110	59	0.536363636	2	2	1	1	0.211382624	0.945089077
110	60	0.545454545	0	2	10	10	0.258819045	0.812389602
110	61	0.554545455	1	2	1	10	0.304114832	0.720445808
110	62	0.563636364	2	2	2	10	0.347305253	0.647904471
110	63	0.572727273	0	2	1	1	0.388434796	0.568821591
110	64	0.581818182	1	2	2	1	0.427555093	0.475972755
110	65	0.590909091	2	2	5	1	0.464723172	0.361566081
110	66	0.6	0	2	22	22	0.5	0.249604232
110	67	0.609090909	1	2	1	22	0.533449274	0.200403412
110	68	0.618181818	2	2	2	22	0.565136414	0.203685678
110	69	0.627272727	0	2	1	1	0.595127743	0.198459706
110	70	0.636363636	1	2	10	1	0.623489802	0.189969977
110	71	0.645454545	2	2	1	1	0.650288808	0.204205856
110	72	0.654545455	0	1	2	2	0.675590208	0.228904087
110	73	0.663636364	1	1	1	2	0.699458327	0.245706245
110	74	0.672727273	2	1	2	2	0.721956094	0.256960757
110	75	0.681818182	0	1	5	5	0.743144825	0.269343888
110	76	0.690909091	1	1	2	5	0.763084068	0.279468499
110	77	0.7	2	1	11	5	0.781831482	0.281021751
110	78	0.709090909	0	1	2	2	0.799442763	0.275305862
110	79	0.718181818	1	1	1	2	0.815971592	0.269707868
110	80	0.727272727	2	1	10	2	0.831469612	0.268212778

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel Paths	Kp	THD - Total Harmonic Distortion
			Winding All Slots Filled	Balanced Winding				
110	81	0.736363636	0	2	1	1	0.845986426	0.266617108
110	82	0.745454545	1	2	2	1	0.859569607	0.257868856
110	83	0.754545455	2	2	1	1	0.872264727	0.238839873
110	84	0.763636364	0	1	2	2	0.884115394	0.211897539
110	85	0.772727273	1	1	5	2	0.895163291	0.182599153
110	86	0.781818182	2	1	2	2	0.905448237	0.156382964
110	87	0.790909091	0	2	1	1	0.915008235	0.136293708
110	88	0.8	1	2	22	1	0.923879533	0.122971276
110	89	0.809090909	2	2	1	1	0.932096686	0.116198084
110	90	0.818181818	0	2	10	10	0.939692621	0.115564239
110	91	0.827272727	1	2	1	10	0.946698696	0.119679907
110	92	0.836363636	2	2	2	10	0.953144767	0.126069388
110	93	0.845454545	0	2	1	1	0.959059248	0.132448029
110	94	0.854545455	1	2	2	1	0.964469175	0.137852874
110	95	0.863636364	2	2	5	1	0.969400266	0.142690529
110	96	0.872727273	0	1	2	2	0.973876979	0.147904802
110	97	0.881818182	1	1	1	2	0.977922572	0.153951312
110	98	0.890909091	2	1	2	2	0.981559157	0.160353656
110	99	0.9	0	1	11	11	0.984807753	0.166114912
110	100	0.909090909	1	1	10	11	0.987688341	0.170539182
110	101	0.918181818	2	1	1	11	0.99021991	0.173851576
110	102	0.927272727	0	1	2	2	0.99242051	0.177284121
110	103	0.936363636	1	1	1	2	0.994307292	0.182555598
110	104	0.945454545	2	1	2	2	0.995896558	0.19093952
110	105	0.954545455	0	1	5	5	0.997203797	0.202472832
110	106	0.963636364	1	1	2	5	0.998243732	0.215865529
110	107	0.972727273	2	1	1	5	0.999030351	0.229074835
110	108	0.981818182	0	1	2	2	0.99957695	0.24003438
110	109	0.990909091	1	1	1	2	0.999896164	0.247164251
112	57	0.508928571	0	1	1	1	0.05508776	2.166447799
112	58	0.517857143	1	1	2	1	0.108119018	1.591095215



Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		THD - Total Harmonic Distortion
			Winding All Slots Filled	Balanced Winding		Paths	Kp	
112	59	0.526785714	2	1	1	1	0.159063496	1.16178779
112	60	0.535714286	0	1	4	4	0.207911691	0.956097664
112	61	0.544642857	1	1	1	4	0.25467112	0.82263124
112	62	0.553571429	2	1	2	4	0.299363123	0.728674215
112	63	0.5625	0	1	7	7	0.342020143	0.657104652
112	64	0.571428571	1	1	16	7	0.382683432	0.580766246
112	65	0.580357143	2	1	1	7	0.421401108	0.492278126
112	66	0.589285714	0	2	2	2	0.458226522	0.38322537
112	67	0.598214286	1	2	1	2	0.493216893	0.268487062
112	68	0.607142857	2	2	4	2	0.526432163	0.204155251
112	69	0.616071429	0	1	1	1	0.557934048	0.202338657
112	70	0.625	1	1	14	1	0.587785252	0.201330169
112	71	0.633928571	2	1	1	1	0.61604882	0.19056103
112	72	0.642857143	0	2	8	8	0.64278761	0.197900559
112	73	0.651785714	1	2	1	8	0.668063864	0.221817325
112	74	0.660714286	2	2	2	8	0.691938869	0.241340786
112	75	0.669642857	0	1	1	1	0.71447268	0.253183514
112	76	0.678571429	1	1	4	1	0.735723911	0.26479621
112	77	0.6875	2	1	7	1	0.755749574	0.276438918
112	78	0.696428571	0	2	2	2	0.774604962	0.281562485
112	79	0.705357143	1	2	1	2	0.792343559	0.278095654
112	80	0.714285714	2	2	16	2	0.809016994	0.271648756
112	81	0.723214286	0	1	1	1	0.824675004	0.268479801
112	82	0.732142857	1	1	2	1	0.839365426	0.2678539
112	83	0.741071429	2	1	1	1	0.853134204	0.263314496
112	84	0.75	0	1	28	28	0.866025404	0.249604232
112	85	0.758928571	1	1	1	28	0.878081248	0.226530397
112	86	0.767857143	2	1	2	28	0.889342149	0.198219622
112	87	0.776785714	0	1	1	1	0.899846754	0.170265601
112	88	0.785714286	1	1	8	1	0.909631995	0.146945689
112	89	0.794642857	2	1	1	1	0.918733142	0.130012845
112	90	0.803571429	0	2	2	2	0.927183855	0.1195424

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel Paths		Kp	THD - Total Harmonic Distortion	
			Winding All Slots Filled	Balanced Winding						
112	91	0.8125	1	2	7	2		0.935016243	0.11528497	
112	92	0.821428571	2	2	4	2		0.942260922	0.116603578	
112	93	0.830357143	0	1	1	1		0.948947073	0.121726202	
112	94	0.839285714	1	1	2	1		0.955102497	0.128198982	
112	95	0.848214286	2	1	1	1		0.960753676	0.13419476	
112	96	0.857142857	0	1	16	16		0.965925826	0.139252172	
112	97	0.866071429	1	1	1	16		0.970642955	0.144015738	
112	98	0.875	2	1	14	16		0.974927912	0.149341528	
112	99	0.883928571	0	1	1	1		0.978802446	0.155439568	
112	100	0.892857143	1	1	4	1		0.982287251	0.161675982	
112	101	0.901785714	2	1	1	1		0.985402015	0.167097784	
112	102	0.910714286	0	2	2	2		0.988165472	0.171188554	
112	103	0.919642857	1	2	1	2		0.990595441	0.174351877	
112	104	0.928571429	2	2	8	2		0.992708874	0.177885384	
112	105	0.9375	0	1	7	7		0.994521895	0.183418691	
112	106	0.946428571	1	1	2	7		0.996049843	0.192037492	
112	107	0.955357143	2	1	1	7		0.997307305	0.203620134	
112	108	0.964285714	0	1	4	4		0.998308158	0.216841025	
112	109	0.973214286	1	1	1	4		0.999065603	0.229735794	
112	110	0.982142857	2	1	2	4		0.999592193	0.240362313	
112	111	0.991071429	0	1	1	1		0.999899872	0.247250351	
114	63	0.552631579	0	2	3	3		0.294755174	0.736875711	
114	64	0.561403509	1	2	2	3		0.336889853	0.665867232	
114	65	0.570175439	2	2	1	3		0.377094842	0.592070958	
114	72	0.631578947	0	1	6	6		0.608761429	0.192667	
114	73	0.640350877	1	1	1	6		0.635432301	0.193270212	
114	74	0.649122807	2	1	2	6		0.660674723	0.214398852	
114	81	0.710526316	0	2	3	3		0.802123193	0.274221271	
114	82	0.719298246	1	2	2	3		0.817929361	0.269315949	
114	83	0.728070175	2	2	1	3		0.832781573	0.268184331	
114	90	0.789473684	0	1	6	6		0.913545458	0.139013604	

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel Paths	THD - Total	
			Winding All Slots Filled	Balanced Winding			Harmonic	Distortion
			Winding	Ratio			Kp	
114	91	0.798245614	1	1	1	6	0.922219513	0.12502468
114	92	0.807017544	2	1	2	6	0.930278443	0.117179177
114	99	0.868421053	0	2	3	3	0.971811568	0.145338011
114	100	0.877192982	1	2	2	3	0.975916762	0.150779901
114	101	0.885964912	2	2	1	3	0.979630808	0.156884528
114	108	0.947368421	0	1	6	6	0.996194698	0.193131583
114	109	0.956140351	1	1	1	6	0.99740517	0.204740449
114	110	0.964912281	2	1	2	6	0.998369104	0.217780644
116	59	0.50862069	2	2	1	1	0.053222175	2.183836574
116	60	0.517241379	0	2	4	4	0.104528463	1.629933185
116	61	0.525862069	1	2	1	4	0.153890577	1.193349746
116	62	0.534482759	2	2	2	4	0.20129852	0.977780486
116	63	0.543103448	0	2	1	1	0.246757398	0.842997946
116	64	0.551724138	1	2	4	1	0.290284677	0.745085515
116	65	0.560344828	2	2	1	1	0.331907853	0.674243524
116	66	0.568965517	0	1	2	2	0.371662456	0.602793496
116	67	0.577586207	1	1	1	2	0.40959036	0.521580713
116	68	0.586206897	2	1	4	2	0.445738356	0.423203988
116	69	0.594827586	0	2	1	1	0.480156935	0.309651684
116	70	0.603448276	1	2	2	1	0.512899277	0.221137291
116	71	0.612068966	2	2	1	1	0.544020398	0.199505318
116	72	0.620689655	0	2	4	4	0.573576436	0.204130216
116	73	0.629310345	1	2	1	4	0.601624063	0.195597239
116	74	0.637931034	2	2	2	4	0.628219997	0.190622316
116	75	0.646551724	0	2	1	1	0.653420604	0.207165744
116	76	0.655172414	1	2	4	1	0.677281572	0.230392404
116	77	0.663793103	2	2	1	1	0.699857651	0.245920289
116	78	0.672413793	0	1	2	2	0.721202447	0.256567045
116	79	0.681034483	1	1	1	2	0.741368262	0.268255311
116	80	0.689655172	2	1	4	2	0.760405966	0.278494052
116	81	0.698275862	0	2	1	1	0.778364912	0.28145487

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum		THD - Total	
			Winding All Slots Filled	Balanced Winding		Parallel Paths	Kp	Harmonic Distortion	
			Winding	Slots Filled		Winding	Parallel Paths	Kp	Harmonic Distortion
116	82	0.706896552	1	2	2	1	0.795292871	0.276974514	
116	83	0.715517241	2	2	1	1	0.811235991	0.270942216	
116	84	0.724137931	0	2	4	4	0.826238774	0.268383038	
116	85	0.732758621	1	2	1	4	0.840344072	0.267748254	
116	86	0.74137931	2	2	2	4	0.853593089	0.263011021	
116	87	0.75	0	1	29	29	0.866025404	0.249604232	
116	88	0.75862069	1	1	4	29	0.87767899	0.227444715	
116	89	0.767241379	2	1	1	29	0.888590248	0.200222579	
116	90	0.775862069	0	1	2	2	0.898794046	0.172995494	
116	91	0.784482759	1	1	1	2	0.908323757	0.149797074	
116	92	0.793103448	2	1	4	2	0.917211302	0.132464151	
116	93	0.801724138	0	2	1	1	0.925487199	0.121190655	
116	94	0.810344828	1	2	2	1	0.933180611	0.115762474	
116	95	0.818965517	2	2	1	1	0.94031939	0.115762261	
116	96	0.827586207	0	2	4	4	0.946930129	0.119877837	
116	97	0.836206897	1	2	1	4	0.953038211	0.125954273	
116	98	0.844827586	2	2	2	4	0.958667853	0.132037068	
116	99	0.853448276	0	2	1	1	0.963842159	0.137248077	
116	100	0.862068966	1	2	4	1	0.968583161	0.141854648	
116	101	0.870689655	2	2	1	1	0.972911871	0.146665362	
116	102	0.879310345	0	1	2	2	0.976848318	0.152211797	
116	103	0.887931034	1	1	1	2	0.980411597	0.15827651	
116	104	0.896551724	2	1	4	2	0.983619907	0.164065083	
116	105	0.905172414	0	2	1	1	0.986490594	0.168806758	
116	106	0.913793103	1	2	2	1	0.989040187	0.17233338	
116	107	0.922413793	2	2	1	1	0.991284439	0.175331753	
116	108	0.931034483	0	2	4	4	0.993238358	0.179148535	
116	109	0.939655172	1	2	1	4	0.994916246	0.185198497	
116	110	0.948275862	2	2	2	4	0.996331731	0.194219255	
116	111	0.956896552	0	2	1	1	0.997497797	0.20583331	
116	112	0.965517241	1	2	4	1	0.998426815	0.218685636	
116	113	0.974137931	2	2	1	1	0.999130574	0.230970222	

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum		THD - Total	
			Winding All Slots Filled	Balanced Winding		Parallel Paths	Kp	Harmonic Distortion	
116	114	0.982758621	0	1	2	2	0.999620307	0.240970419	
116	115	0.99137931	1	1	1	2	0.999906716	0.247409472	
118	60	0.508474576	0	2	2	2	0.052335956	2.19195522	
118	61	0.516949153	1	2	1	2	0.102820997	1.648638621	
118	62	0.525423729	2	2	2	2	0.151427778	1.209309731	
118	63	0.533898305	0	1	1	1	0.198146143	0.988507119	
118	64	0.542372881	1	1	2	1	0.24298018	0.853074885	
118	65	0.550847458	2	1	1	1	0.285945678	0.753332865	
118	66	0.559322034	0	2	2	2	0.327067963	0.682286018	
118	67	0.56779661	1	2	1	2	0.366380038	0.612980012	
118	68	0.576271186	2	2	2	2	0.403921005	0.534826441	
118	69	0.584745763	0	1	1	1	0.439734721	0.441391584	
118	70	0.593220339	1	1	2	1	0.473868662	0.330687147	
118	71	0.601694915	2	1	1	1	0.506372963	0.234162186	
118	72	0.610169492	0	2	2	2	0.537299608	0.199532344	
118	73	0.618644068	1	2	1	2	0.566701756	0.203876678	
118	74	0.627118644	2	2	2	2	0.594633176	0.198671183	
118	75	0.63559322	0	1	1	1	0.62114778	0.189954378	
118	76	0.644067797	1	1	2	1	0.646299238	0.200688343	
118	77	0.652542373	2	1	1	1	0.670140662	0.223838436	
118	78	0.661016949	0	2	2	2	0.692724354	0.241830857	
118	79	0.669491525	1	2	1	2	0.714101599	0.253002141	
118	80	0.677966102	2	2	2	2	0.734322509	0.263949269	
118	81	0.686440678	0	1	1	1	0.753435896	0.275273265	
118	82	0.694915254	1	1	2	1	0.77148918	0.281354012	
118	83	0.703389831	2	1	1	1	0.788528322	0.279390865	
118	84	0.711864407	0	2	2	2	0.80459778	0.273247759	
118	85	0.720338983	1	2	1	2	0.819740483	0.269015844	
118	86	0.728813559	2	2	2	2	0.833997818	0.268154036	
118	87	0.737288136	0	1	1	1	0.847409631	0.266152309	
118	88	0.745762712	1	1	2	1	0.86001424	0.257392798	

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel Paths	Kp	THD - Total Harmonic Distortion	
			Winding All Slots Filled	Balanced Winding					
118	89	0.754237288	2	1	1	1	0.871848453	0.239640452	
118	90	0.762711864	0	2	2	2	0.882947593	0.214847956	
118	91	0.771186441	1	2	1	2	0.8933345534	0.187474581	
118	92	0.779661017	2	2	2	2	0.903074732	0.162115047	
118	93	0.788135593	0	1	1	1	0.912166268	0.141702815	
118	94	0.796610169	1	1	2	1	0.920649887	0.127159764	
118	95	0.805084746	2	1	1	1	0.928554038	0.118391056	
118	96	0.813559322	0	2	2	2	0.935905927	0.115172657	
118	97	0.822033898	1	2	1	2	0.94273155	0.11685736	
118	98	0.830508475	2	2	2	2	0.949055747	0.121831404	
118	99	0.838983051	0	1	1	1	0.954902241	0.12798061	
118	100	0.847457627	1	1	2	1	0.960293686	0.13372592	
118	101	0.855932203	2	1	1	1	0.965251704	0.138604716	
118	102	0.86440678	0	2	2	2	0.969796936	0.14310571	
118	103	0.872881356	1	2	1	2	0.973949076	0.148000403	
118	104	0.881355932	2	2	2	2	0.977726916	0.153627818	
118	105	0.889830508	0	1	1	1	0.981148383	0.159607662	
118	106	0.898305085	1	1	2	1	0.984230578	0.165131403	
118	107	0.906779661	2	1	1	1	0.986989811	0.169547644	
118	108	0.915254237	0	2	2	2	0.989441639	0.172848149	
118	109	0.923728814	1	2	1	2	0.991600897	0.175822936	
118	110	0.93220339	2	2	2	2	0.993481735	0.17981161	
118	111	0.940677966	0	1	1	1	0.995097645	0.18611	
118	112	0.949152542	1	1	2	1	0.996461494	0.195298256	
118	113	0.957627119	2	1	1	1	0.997585551	0.206898457	
118	114	0.966101695	0	2	2	2	0.998481516	0.219557255	
118	115	0.974576271	1	2	1	2	0.999160548	0.231546839	
118	116	0.983050847	2	2	2	2	0.999633286	0.241252587	
118	117	0.991525424	0	1	1	1	0.999909878	0.24748307	
120	63	0.525	0	1	3	3	0.149042266	1.225362448	
120	64	0.533333333	1	1	8	3	0.195090322	0.999191747	



Appendix 1: Slot - Pol Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Balanced			Maximum			THD - Total	
		Slot/Pole	Ratio	Winding All Slots Filled	Balanced Winding	Ct	Parallel Paths	Kp	Harmonic Distortion
120	65	0.541666667		2	1	5	3	0.239315664	0.863054271
120	72	0.6		0	2	24	24	0.5	0.249604232
120	73	0.608333333		1	2	1	24	0.530730048	0.201496834
120	74	0.616666667		2	2	2	24	0.559974786	0.202782194
120	81	0.675		0	1	3	3	0.727373642	0.259900638
120	82	0.683333333		1	1	2	3	0.746553222	0.271401178
120	83	0.691666667		2	1	1	3	0.764691093	0.279971502
120	90	0.75		0	1	30	30	0.866025404	0.249604232
120	91	0.758333333		1	1	1	30	0.877302694	0.228292127
120	92	0.766666667		2	1	4	30	0.887885218	0.202092476
120	99	0.825		0	1	3	3	0.945000819	0.118332187
120	100	0.833333333		1	1	20	3	0.951056516	0.123848433
120	101	0.841666667		2	1	1	3	0.956657719	0.129889283
120	108	0.9		0	1	12	12	0.984807753	0.166114912
120	109	0.908333333		1	1	1	12	0.987461878	0.17022331
120	110	0.916666667		2	1	10	12	0.989821442	0.173334714
120	117	0.975		0	1	3	3	0.999188998	0.232098334
120	118	0.983333333		1	1	2	3	0.999645611	0.241521367
120	119	0.991666667		2	1	1	3	0.999912882	0.24755304
122	62	0.508196721		2	1	2	2	0.050649169	2.207146396
122	63	0.516393443		0	2	1	1	0.099567847	1.684632192
122	64	0.524590164		1	2	2	1	0.146730474	1.241486582
122	65	0.532786885		2	2	1	1	0.192126717	1.009858854
122	66	0.540983607		0	1	2	2	0.235758936	0.872921096
122	67	0.549180328		1	1	1	2	0.277640001	0.769969021
122	68	0.557377049		2	1	2	2	0.31779142	0.697578779
122	69	0.56557377		0	2	1	1	0.356241712	0.631894067
122	70	0.573770492		1	2	2	1	0.393025032	0.559042417
122	71	0.581967213		2	2	1	1	0.428179984	0.474274247
122	72	0.590163934		0	1	2	2	0.461748613	0.371534464
122	73	0.598360656		1	1	1	2	0.49377555	0.266851085



Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		THD - Total Harmonic Distortion	
			Winding All Slots Filled	Balanced Winding		Paths	Kp		
122	74	0.606557377	2	1	2	2	0.524307284	0.205929147	
122	75	0.614754098	0	2	1	1	0.553391549	0.201275528	
122	76	0.62295082	1	2	2	1	0.581076815	0.203195327	
122	77	0.631147541	2	2	1	1	0.607411852	0.193175118	
122	78	0.639344262	0	1	2	2	0.632445376	0.19193272	
122	79	0.647540984	1	1	1	2	0.656225749	0.209920223	
122	80	0.655737705	2	1	2	2	0.678800746	0.231691388	
122	81	0.663934426	0	2	1	1	0.700217348	0.246111837	
122	82	0.672131148	1	2	2	1	0.720521594	0.256214329	
122	83	0.680327869	2	2	1	1	0.739758451	0.267265544	
122	84	0.68852459	0	1	2	2	0.757971723	0.277472435	
122	85	0.696721311	1	1	1	2	0.775203976	0.281571441	
122	86	0.704918033	2	1	2	2	0.791496488	0.278400767	
122	87	0.713114754	0	2	1	1	0.806889217	0.272390949	
122	88	0.721311475	1	2	2	1	0.821420775	0.268789305	
122	89	0.729508197	2	2	1	1	0.835128429	0.26811841	
122	90	0.737704918	0	1	2	2	0.848048096	0.265915544	
122	91	0.745901639	1	1	1	2	0.860214356	0.257174131	
122	92	0.754098361	2	1	2	2	0.87166047	0.239998243	
122	93	0.762295082	0	2	1	1	0.882418399	0.216168397	
122	94	0.770491803	1	2	2	1	0.892518836	0.189697399	
122	95	0.778688525	2	2	1	1	0.90199123	0.164809534	
122	96	0.786885246	0	1	2	2	0.910863825	0.144349761	
122	97	0.795081967	1	1	1	2	0.91916369	0.129348927	
122	98	0.803278689	2	1	2	2	0.926916757	0.11978576	
122	99	0.81147541	0	2	1	1	0.93414786	0.11546977	
122	100	0.819672131	1	2	2	1	0.940880769	0.115970601	
122	101	0.827868852	2	2	1	1	0.947138229	0.120058501	
122	102	0.836065574	0	1	2	2	0.952942	0.125850454	
122	103	0.844262295	1	1	1	2	0.958312892	0.131662108	
122	104	0.852459016	2	1	2	2	0.963270801	0.136693763	
122	105	0.860655738	0	2	1	1	0.967834748	0.141107668	

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		THD - Total Harmonic Distortion	
			Winding All Slots Filled	Balanced Winding		Paths	Kp	Harmonic	Distortion
122	106	0.868852459	1	2	2	1	0.972022914	0.145586357	
122	107	0.87704918	2	2	1	1	0.975852672	0.150684112	
122	108	0.885245902	0	1	2	2	0.979340622	0.156374087	
122	109	0.893442623	1	1	1	2	0.982502626	0.162065895	
122	110	0.901639344	2	1	2	2	0.985353836	0.16701933	
122	111	0.909836066	0	2	1	1	0.987908727	0.170841728	
122	112	0.918032787	1	2	2	1	0.990181125	0.17380077	
122	113	0.926229508	2	2	1	1	0.992184237	0.176829121	
122	114	0.93442623	0	1	2	2	0.993930677	0.181199306	
122	115	0.942622951	1	1	1	2	0.995432492	0.187963246	
122	116	0.950819672	2	1	2	2	0.99670119	0.197422597	
122	117	0.959016393	0	2	1	1	0.997747759	0.20894541	
122	118	0.967213115	1	2	2	1	0.998582696	0.221205346	
122	119	0.975409836	2	2	1	1	0.999216026	0.232626058	
122	120	0.983606557	0	1	2	2	0.999657325	0.241777579	
122	121	0.991803279	1	1	1	2	0.999915738	0.247619616	
124	63	0.508064516	0	1	1	1	0.049845886	2.214256994	
124	64	0.516129032	1	1	4	1	0.09801714	1.70192915	
124	65	0.524193548	2	1	1	1	0.14448905	1.257660343	
124	66	0.532258065	0	2	2	2	0.189251244	1.020531146	
124	67	0.540322581	1	2	1	2	0.232305357	0.882664567	
124	68	0.548387097	2	2	4	2	0.27366299	0.778373751	
124	69	0.556451613	0	1	1	1	0.313343968	0.704929451	
124	70	0.564516129	1	1	2	1	0.351374824	0.640687319	
124	71	0.572580645	2	1	1	1	0.387787506	0.570182508	
124	72	0.580645161	0	1	4	4	0.422618262	0.489112842	
124	73	0.588709677	1	1	1	4	0.455906694	0.390841419	
124	74	0.596774194	2	1	2	4	0.487694944	0.285294494	
124	75	0.60483871	0	1	1	1	0.518027009	0.213092099	
124	76	0.612903226	1	1	4	1	0.546948158	0.199913517	
124	77	0.620967742	2	1	1	1	0.574504438	0.204084629	

Appendix 1: Slot - Pole Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		Kp	THD - Total Harmonic Distortion	
			Winding All Slots Filled	Balanced Winding		Paths	Parallel			
124	78	0.629032258	0	2	2	2		0.600742264	0.195986587	
124	79	0.637096774	1	2	1	2		0.625708076	0.190170126	
124	80	0.64516129	2	2	4	2		0.649448048	0.203438155	
124	81	0.653225806	0	1	1	1		0.672007861	0.225616568	
124	82	0.661290323	1	1	2	1		0.693432501	0.242265206	
124	83	0.669354839	2	1	1	1		0.713766113	0.252838456	
124	84	0.677419355	0	1	4	4		0.733051872	0.263188689	
124	85	0.685483871	1	1	1	4		0.75133189	0.274145339	
124	86	0.693548387	2	1	2	4		0.76864714	0.280927823	
124	87	0.701612903	0	1	1	1		0.785037405	0.280359827	
124	88	0.709677419	1	1	4	1		0.800541241	0.274859491	
124	89	0.717741935	2	1	1	1		0.81519595	0.269882663	
124	90	0.725806452	0	2	2	2		0.829037573	0.26827164	
124	91	0.733870968	1	2	1	2		0.842100885	0.267500526	
124	92	0.741935484	2	2	4	2		0.854419405	0.262433349	
124	93	0.75	0	1	31	31		0.866025404	0.249604232	
124	94	0.758064516	1	1	2	31		0.876949928	0.229079496	
124	95	0.766129032	2	1	1	31		0.887222819	0.203840777	
124	96	0.774193548	0	1	4	4		0.896872742	0.178047438	
124	97	0.782258065	1	1	1	4		0.90592721	0.155257241	
124	98	0.790322581	2	1	2	4		0.914412623	0.137384467	
124	99	0.798387097	0	1	1	1		0.922354294	0.124850013	
124	100	0.806451613	1	1	4	1		0.929776486	0.117504135	
124	101	0.814516129	2	1	1	1		0.936702445	0.115138399	
124	102	0.822580645	0	2	2	2		0.943154434	0.117101241	
124	103	0.830645161	1	2	1	2		0.949153773	0.121926734	
124	104	0.838709677	2	2	4	2		0.954720867	0.127782815	
124	105	0.846774194	0	1	1	1		0.959875242	0.133295938	
124	106	0.85483871	1	1	2	1		0.964635582	0.138012941	
124	107	0.862903226	2	1	1	1		0.96901976	0.142298278	
124	108	0.870967742	0	1	4	4		0.973044871	0.146831819	
124	109	0.879032258	1	1	1	4		0.97672726	0.152021583	

Appendix 1: Slot - Pol Combination Comparison Chart for Coil Span of 1 Tooth

Poles	Slots	Slot/Pole Ratio	Balanced		Ct	Maximum Parallel		THD - Total Harmonic Distortion	
			Winding All Slots Filled	Balanced Winding		Paths	Kp		
124	110	0.887096774	2	1	2	4	0.980082561	0.157686981	
124	111	0.89516129	0	1	1	1	0.983125718	0.16318691	
124	112	0.903225806	1	1	4	1	0.985871019	0.167849362	
124	113	0.911290323	2	1	1	1	0.988332122	0.171410693	
124	114	0.919354839	0	2	2	2	0.990522085	0.174252763	
124	115	0.927419355	1	2	1	2	0.992453387	0.177349992	
124	116	0.935483871	2	2	4	2	0.994137957	0.181922066	
124	117	0.943548387	0	1	1	1	0.995587198	0.188900037	
124	118	0.951612903	1	1	2	1	0.996812007	0.198464747	
124	119	0.959677419	2	1	1	1	0.997822801	0.209927463	
124	120	0.967741935	0	1	4	4	0.998629535	0.221984253	
124	121	0.975806452	1	1	1	4	0.999241725	0.233131277	
124	122	0.983870968	2	1	2	4	0.999668468	0.24202198	
124	123	0.991935484	0	1	1	1	0.999918456	0.247683013	